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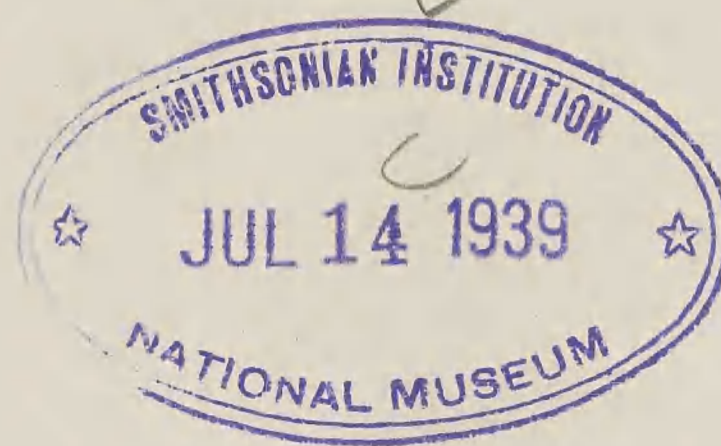
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LONDON:

L. REEVE & CO., 5, HENRIETTA STREET, COVENT GARDEN.

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WET AND DRY-SEASON FORMS.—Of the two named forms, *blasius* and *perseus*, Mr. de Nicéville (J. A. Soc. Bengal, 1887, 348) states that he has proved by actual breeding, that they are but seasonal forms of one and the same species. No full account of the transformations, however, or the rearing of the broods, has yet been published.

VARIATION OF INDIVIDUALS IN DRY-SEASON BROOD.—The dry-season brood of this species is generally more or less larger in size than those of the wet-season brood, especially in the female. In some specimens of the dry-season brood reared in Calcutta by Mr. L. de Nicéville at the end of November, 1886, from eggs deposited by a female of the previous wet-season brood, and kindly sent me for examination, both sexes (Plate 59, f, d, ♀) are more like those of the wet-season brood on the underside, not only in the general tone of colour, but in having, though of smaller size, fully developed ocelli on both wings; the discal band distinctly formed and with very slightly-defined vein points, the outer border of the wings violescent-grey and somewhat speckled, and the submarginal lines also well defined. Other specimens of this same brood—and emergence on the same day—being of the normal mottled pattern on the underside. In another example of the female (Plate 59, f, e, ♀) which was sent to me years ago from Calcutta by the late Mr. W. S. Atkinson, the upper and lower ocellus on the underside of the forewing is replaced by a large white spot, and the ocelli on the hindwing have each a large speckled-white pupil.

Of the illustrations of this species on our Plate No. 59, figs. 1, 1a, is that of a Calcutta male of the wet-season brood; fig 1b, that of a Calcutta male of the variety named *Samba*; and figs. 1c, d, of a Ceylon female of the same brood. Of the dry-season brood, figs. 2, 2a, represents a Calcutta male; figs. 2b, c, a Nilgiri female, and figs. 2d and 2e, varieties of Calcutta females.

DISTRIBUTION WITHIN INDIAN AREA.—This is a very widely distributed species, being found in all suitable localities throughout India, except in the extreme west. It also extends to Ceylon and Burma, but has not been found in the Andaman or Nicobar Islands, though it has been erroneously included in the list of the Andaman butterflies published in Proc. Zool. Soc. Lond. 1877, 583, on the authority of its previous insertion, by Mr. Hewitson, in the list compiled by him and published in the Annals & Mag. Nat. Hist. 1874, p. 356, under the name of *M. Samba*. In the N.W. Himalayas, Major H. B. Hellard, in his MS. Notes, records its capture in Simla, at the end of June; the Rev. J. Hocking (P. Z. S. 1882, 237), obtained it in Kangra; Mr. W. Doherty (J. A. S. Beng. 1886, 114) took it in Kumaon, “the first specimen of the dry-season form seen on the Lower Gori, 2500 feet, Sept. 29th; also in the Kali Valley and the Bhábar or dry Tarai, 1—3000 feet; the wet-season form being common in the same localities in August and September.” In the Eastern Himalayas, according to Mr. de Nicéville (J. A. S. Beng. 1885, p. 1), “both the ocellated and

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unocellated forms are very rare in Sikkim," and Mr. H. I. Elwes (Tr. Ent. Soc. Lond. 1888, 303), also observes that they "are not common in the Sikkim hills, but occur at low elevations, and more abundantly in the Terai. Mr. O. Müller notes both forms as occurring towards the end of the rains in September and October." It is recorded (Butt. of India, i. 116) from the Punjab, and also as being common at Lucknow in Oudh. In Manipuri, N. W. Provinces, it was obtained by the late Mr. C. Horne. At Mhow, in the Central Provinces, Col. C. Swinhoe (P. Z. S. 1886, 422), records the capture of *perseus* in October and April, one specimen only being taken in the latter month; it was fairly common in October." Mr. J. A. Betham obtained it at Raipur in November. In Bombay, *perseus* was taken by Col. Swinhoe in "October, but was not common, and in Poona in October and November." Major W. J. Yerbury, in his MS. Notes, records *perseus* as taken "on Matheran Hill at end of October." Mr. G. F. Hampson (J. A. S. Beng. 1888, 348) obtained it on the Nilgiris—the specimens recorded are now under examination,—the wet-season brood being taken in August, September and October and the dry-season brood in November and January. From Travancore, further south, I possess specimens taken at Kowdias, at 2000 feet. In Ceylon, Capt. Hutchinson states (Lep. Ceylon, i. 21) that it is "found at all times in the Western and Central Provinces, both in the plains and up to 2000 feet, on grassy lands; its flight being short and slow, along edges of forest-paths and grass lands, settling on tufts of grass." On the Eastern side of Continental India we have no record of its occurring in the Madras district. Mr. W. C. Taylor notes it in his list of butterflies of Orissa, as being taken in Khorda, where it is very common. Specimens from Ranchi, Lower Bengal, taken by Mr. Irvine, in July, are in Col. Swinhoe's collection. In the neighbourhood of Calcutta Mr. J. Rothney (Ent. Mo. Mag. 1882, 34) found it "common in Barrackpore Park, being fond of shade and settling mostly on long grass." Mr. L. de Nicéville (J. A. S. Beng. 1885, 42) found the ocellated brood not uncommon during the rainy season in the Calcutta district, and the unocellated form being common during the cold and hot weather, and in 1886 reared the unocellated form during November, from eggs deposited by a female of the previous wet-season form. Specimens of both the wet and dry-season forms from Malda, taken by Mr. Irvine, are in Col. Swinhoe's and Mr. Hampson's collections. In Cachar, according to Mr. Wood-Mason (J. A. S. Beng. 1887, 348) "eleven males and one female of the ocellated form obtained around Silcuri between May 27th and June 28th, and of the unocellated form two males only were obtained near Silchar on April 3rd." Specimens from Shillong, in the Kasia Hills, are in Mr. P. Crowley's cabinet. From Burma, I possess specimens of the wet-season form, taken in September in the Chittagong Hills. In the Shan States it was found to be very common by Dr. N. Manders (Tr. Ent. Soc. Lond. 1890, 517). According to Major C. H. E. Adamson (Notes on Burmese butterflies), the "ocellated form is very common

throughout Burma from May to October, and the unocellated form during the dry season." It was obtained by Mr. Otto Limborg in Upper Tenasserim from "Moulmein to Meetan" (P. Z. S. 1878, 825); Dr. J. Anderson took the dry-season form in the Mergui Archipelago during December (J. Linn. Soc. 1886, 32).

DISTRIBUTION OUTSIDE INDIAN AREA.—Mr. Distant (Rhop. Malayana, p. 53) records it from the Malay Peninsula. It also occurs at Penang. In my own possession are specimens of the wet-season form (*blasius*) from Singapore, Sumatra, Java, Belitong, Borneo, Philippines, Hainan, and Formosa, those from the two latter islands having been taken by the late Mr. R. Swinhoe.

CALYSISME PERSEOIDES.

WET-SEASON BROOD? (Plate 60, fig. 2, 2a, ♂ ♀).

IMAGO.—Male and female. Upperside olivescient ochreous-brown. *Forewing* with a dusky transverse discal line, and a large median ocellus. *Hindwing* with a small indistinct lower median ocellus. Underside pale virescent-brown in male, paler and more olivescient ochreous-brown in female; both wings with a slender indistinct dusky transverse subbasal line, and a pale ochreous-bordered well-defined discal line; marginal lines slender. *Forewing* with a linear series of five moderately small distinctly-formed ocelli, of which the fourth is largest. *Hindwing* with seven somewhat linearly disposed well-defined moderately small ocelli, all encompassed by a pale outer line. *Male* with a short glandular patch of *bright ochreous-brown* scales above the submedian on underside of the forewing; and on the hindwing, above, with a subbasal tuft of yellow hairs overlapping a glandular patch of *black* scales.

Expanse, ♂ $1\frac{6}{8}$, ♀ $1\frac{7}{8}$ inch.

DRY-SEASON BROOD (Plate 60, fig. 2b, c, ♂ ♀).

IMAGO.—Upperside with a minute subapical ocellus, the median ocellus somewhat larger. Underside pale olivescient ochreous-brown; transverse subbasal and discal line less defined, the latter with slight pale outer vein points; the five linearly-disposed ocelli on forewing and the seven on the hindwing very minute, being indicated by black dots with white pupil; marginal denticular line indistinct. *Male* with a short glandular patch of *bright ochreous-brown* scales on underside of forewing, and the black patch on the hindwing, as above.

Expanse, ♂ $1\frac{6}{8}$, ♀ 2 inches.

HABITAT.—Lower Burma.

Distinguishable from Burmese examples of *C. Perseus*, on the upperside, by the large ocellus on the forewing, and on the underside by the pale-bordered transverse discal band; the series of five ocelli on the forewing and their more linear sequence. On the underside the male is very similar to that sex of the wet-season brood of *C. Horsfieldi* (described further on, among the allied Indo-Malayan species of *Calysisme*),

being of like colour, width of transverse band, the same number and size of ocelli on the forewing, and their same linear sequence on both wings, but in *C. Horsfieldi* the glandular patches are ochreous, and that on the upperside of the hindwing is very prominent, and moreover is abnormally prolonged between the two subcostal branches to about half-way from the outer margin of the wing. Although here indicated as a distinct species, it is doubtful whether the male and female described and figured as representing examples of a wet-season brood may not eventually prove to be those only of an early emergence or variety of the dry-season brood.

DISTRIBUTION.—The males on Pl. 60, fig. 2 and 2b, were taken at Rangoon by Mr. Noble and are in Col. Swinhoe's collection, the latter specimen being obtained in December; fig. 2a is a female from Toungu in my own possession, and fig. 2c is also of a female, taken at Mepley in February (Marshall) also in Col. Swinhoe's collection.

CALYSISME POLYDECTA.*

WET-SEASON BROOD (Plate 61, fig. 1, 1a, b, c, d, e, f, g, h, ♂ ♀).

Papilio Justina, Cramer, Pap. Exot. iv. pl. 326, fig. c. ♀ (1780).

Mycalesis Justina, Hübner, Verz. bek. Schmett. p. 55 (1816).

Calysisme Justina, Moore, Trans. Ent. Soc. Lond. 1880, p. 161.

Calysisme Drusia Moore, Lep. Ceylon, i. p. 20, pl. xi., fig. 3, 3a. ♂ (1880).

Calysisme Mineus, Moore, Lep. Ceylon, i. p. 22, pl. xi., fig. 4, 4a, b. ♂ ♀ (1880).

Mycalesis (Calysisme) Mineus (part), Marshall and de Nicéville, Butt. of India, etc. i. p. 117 (1883).

Mycalesis (Calysisme) Mineus, form *Justina*, Hampson, Journ. Asiat. Soc. Bengal, 1888, p. 348.

IMAGO.—Male. Upperside dark brown; marginal lines paler; cilia cinereous-brown. *Forewing* palest externally beyond the slightly indicated transverse discal line; with a moderately large distinctly formed median ocellus with yellowish outer ring (much larger than in the males of the wet and dry-season brood of *C. Blasius*) the surrounding area being slightly ochreous tinged. *Hindwing* with, or without, a very small lower median ocellus; and with a subbasal tuft of yellow hairs overlapping a glandular patch of blackish scales. Underside dark umber-brown, sometimes of a vinaceous tint. Both wings with a prominent broader transverse discal virescent-white band than in *C. Blasius*; marginal lines ochreous. *Forewing* with a moderately large subapical and larger median ocellus, each encircled by a narrow virescent-grey outer ring; a small glandular patch of blackish scales on the middle of the submedian vein. In some southern Ceylon specimens of the male (figured in Lep. of Ceylon, pl. xi. fig. 4, 4a)—probably hybrids between *Blasius* and *subdita*—there is a minute ocellus attached beneath the subapical, and a similar minute one also attached above and another beneath the median ocellus, each set being either separately encircled by the violet-grey outer ring or all encompassed within it; in

* *Polydecta* being the oldest name for this species, it is therefore here used.

these specimens the glandular patch is also blackish. *Hindwing* with seven ocelli, more prominent and somewhat larger than in *C. Blasius*, encompassed within a narrow virescent-grey outer line, the second, third, and seventh ocellus minute.

Female. Upperside with the pale transverse broad discal band of the underside distinctly visible on both wings. *Forewing* with a large median ocellus surrounded by a slightly paler area. Underside. Both wings with very prominent broad virescent-white discal band; marginal lines ochreous. *Forewing* with two ocelli, and hindwing with seven prominent ocelli, as in male. In some Ceylonese specimens of this sex, of the wet-season brood, there are two small subapical ocelli on the forewing, and in others all the ocelli are smaller and those on the forewing with two minute intervening ocelli; this latter specimen (Plate 61, fig. g.) fairly agreeing with Cramer's figure of *Polydecta*, and which evidently represents an early dry-season specimen, but overcoloured by his artist.

Expanse, $1\frac{5}{8}$ to 2 inches.

DRY-SEASON BROOD (Plate 62, fig. 1, 1a, b, c, d, e, f, g, h, i, ♂ ♀).

Papilio Polydecta, Cramer, Pap. Exot. ii. pl. 144, fig. e, f, ♀ (1777).

Calysime Polydecta, Moore, Trans. Ent. Soc. Lond. 1880, p. 162.

Mycalesis Polydecta, Westwood, Gen. Diurnal Lep. p. 393 (1851); Butler, Catal. Satyr. Brit. Mus. p. 135 (1868).

Mycalesis (Samanta) Polydecta, de Nicéville, Trans. Ent. Soc. Lond. 1884, p. 83, pl. 3, fig. 2, ♂, fig. 1, ♀.

Calysime Perseus, Moore, Lep. of Ceylon, i. p. 21, pl. 12, fig. 1, 1a, ♂ (1880).

Mycalesis (Calysime) perseus, form *subfasciata*, Hampson, Journ. Asiat. Soc. Bengal, 1888, p. 348.

IMAGO.—Male. Upperside ochreous-brown; exterior margins and cilia cinereous-brown. *Forewing* with the transverse discal line distinct but diffused; the median ocellus large, white pupilled and ringed with yellow, its bordering area also generally yellowish and forming a more or less defined quadrate patch: sometimes there is also a minute subapical ocellus present. *Hindwing* sometimes with a minute median ocellule or white dot; a subbasal radiating tuft of yellow hairs overlapping a small glandular patch of blackish scales. Underside either dark ochreous-brown or shades of dark greyish-brown, thickly speckled with darker brown; the basal area darkest; the subbasal transverse line sometimes slightly pale bordered; the transverse discal line generally well-defined and pale bordered, and in some there are indications of pale external vein points, also in some specimens a paler or brighter ochreous tint suffuses the middle of the outer border of the discal line on each wing. *Forewing* with four, and hindwing with seven small ocelli, or minute blackish spots with white pupils—when the three or four lower spots on the hindwing are generally the most distinct; beyond these the marginal lines are ill-defined, or sometimes a submarginal series of delicate denticules are present.

Female. Upperside ochreous-brown; exterior margins cinereous-brown. *Forewing* less acute at the apex than *C. Perseus*; the ocellus generally with the quadrate yellowish bordering area. *Hindwing* with, or without, a very small blackish ocellule between the lower medians. Underside rufescent-brown, speckled with darker brown; basal area very slightly darker; the transverse lines more or less defined; the ocelli small or indicated only by minute black spots with white pupils, the three lowest on the hindwing being then generally the most prominent. Body beneath, legs, and sides of palpi pale ochreous or greyish-brown.

Expanse, ♂ $1\frac{4}{8}$ to $1\frac{6}{8}$; ♀ $1\frac{7}{8}$ to $2\frac{1}{8}$ inches.

HABITAT.—Eastern, Central, and Southern India; Ceylon.

Individuals of the dry-season brood of *C. Polydecta* are distinguishable from those of the dry-season brood of *C. Perseus* by the large pale-bordered ocellus on the upperside of the forewing, and in the hindwings of both sexes having a scalloped exterior margin, which latter is very prominent in most of the females.

Specimens of the dry-season brood of this species, collected by Mr. E. E. Green at Pundaloya in the West-Central division of Ceylon, are, in both sexes, darker coloured on the underside than the Continental Indian examples, and have a pale more or less ochreous fascia to the transverse discal line; in one of the males there are four small ocelli on one side and five on the other forewing, and those on the hindwing are also more developed than in ordinary specimens of this brood. Other similar males and females in Mr. J. Jenner Weir's collection from the same locality, Pundaloya, have each five very small ocelli in a linear sequence all on the underside of the forewing. All the males have a short *blackish* glandular patch on both fore and hindwing, and are the same as that figured by Mr. de Nicéville (Trans. Ent. Soc. Lond. 1884, pl. 3, f. 2) as representing the male of *C. Polydecta*.

HISTORICAL NOTE.—Cramer's figures of *Polydecta* (Pap. Exot. 11, pl. 144, f. e, f) represent a female (which has evidently been over-coloured by his artist), and is doubtless that of a specimen of an early dry-season or so-called unocellated brood, in which the ocelli on the underside of both wings are much reduced in size, or are undeveloped, and disposed in a more linear sequence. *Polydecta* is an undoubted Calysisme, and not a Samanta, as stated by Mr. de Nicéville in his paper on this species in Trans. Ent. Soc. Lond. 1884, p. 88. Cramer's figure shows four small ocelli on the underside of the forewing, the lower two of which are correctly disposed between the median branches and the upper two between the upper median and upper radial. In Mr. de Nicéville's representation of this figure in the paper above mentioned (Plate 3, fig. 1) and there given as a true copy of Cramer's figure, the details of the veining and positions of the ocelli on the underside of the forewing has been, incorrectly copied by his artist, as may easily be seen by reference to Cramer's original figure. In Mr. de Nicéville's copy (Plate 3, fig. 1) the lower ocellus on the forewing is represented as being situated between the submedian vein and lower median branch,

and the upper ocellus as occurring between the upper median and lower radial ; the upper radial veinlet being moreover here omitted altogether. These inaccuracies can be easily tested by comparison with the veins on the opposite or upperside side of the same figure (fig. 1) of the same plate, where they are correctly given. It has been necessary to point out these inaccuracies in Mr. de Nicéville's reproduction of Cramer's figure, inasmuch as our own identification of the species (*polydecta*) mainly rests on the position and the number of the ocelli on the underside of the forewing, and, though the errors in the figure here noted are evidently those of the artist, they would, moreover, puzzle other less critical eyes more so than they have our own.

DISTRIBUTION.—Commencing Eastward. We have verified examples of the dry-season brood from Malda taken by Mr. Irvine, and from Barrackpore in the Calcutta district taken in November, both in the collection of Col. Swinhoe, as are also others from the Central Provinces, taken by Mr. Betham at Daolapur in November, and at Mahoda, also in November. From the Bombay district, examples from Wangni in the Thanna division, taken in November and December—the wet-season form having been taken by Col. Swinhoe in Bombay in August, and the dry-season form in November and at Poona in October. Southward, Mr. Hampson obtained on the Nilgiris the wet-season form from August to October, and the dry-season form from November to January. Dr. J. Shortt has taken the wet-season form on the Shevaroyes. It also occurs at Kallaur in Travancore in April. In Ceylon Mr. E. E. Green obtained the wet and dry-season broods at Pundaloya, in the West Central district.

Of the illustrations on our Plate 61 of *C. Polydecta*, figs. 1, 1a, b, d, represent a male and female of the *wet-season brood* from Travancore ; fig. 1c, that of a Ceylon male ; figs. 1e, f, a variety of the Ceylon male and female ; figs. 1g, h, also of a Ceylon male and female, the latter fairly agreeing with Cramer's figure, and probably that of a specimen of an early emergence of the dry-season brood. On our Plate 62 are illustrations of the dry-season brood—figs. 1, 1a, of a Bombay male ; figs. 1b, c, Nilgiri males ; figs. 1d, e, Ceylon males ; fig. 1f, a Nilgiri female ; figs. 1g, h, Bombay females, and fig. 1i, a large Ceylon female variety.

CALYSISME MINEUS.

WET-SEASON BROOD (Plate 60, fig. 1, 1a, b, c, d, ♂ ♀).

Papilio Mineus, Linnaeus, Syst. Nat. I. 2, p. 768 (1767) ; Fabricius, Syst. Ent. p. 488 (1775).

Mycalesis Minea, Hübner, Verz. bek. Schmett. p. 55 (1816).

Mycalesis Mineus, Butler, Catal. Satyr. Brit. Mus. p. 135 (1868) ; Catal. Fabrician Lep. Brit. Mus. p. 34 (1869). Moore, Proc. Zool. Soc. 1878, p. 825.

Calysisme Mineus, Moore, Trans. Ent. Soc. Lond. 1880, p. 161.

Mycalesis Mineus (part), Distant, Rhopal. Malayana, p. 50, pl. iv. fig. 13, ♂, (fig. 14, ♀), 1882.

Mycalesis (*Calysisme*) *Mineus* (part), Marshall and de Nicéville, Butt. of India, etc. i. p. 117 (1883) ; Doherty, Journ. Asiatic Soc. Bengal, 1886, p. 114 ; Elwes and de Nicéville, Journ. As. Soc. Bengal, 1887, p. 417 ; *id.* Trans. Ent. Soc. 1888, p. 304.

Papilio Drusia, Cramer, Pap. Exot. i. pl. 84, fig. c, d, (1775), ♀.

Mycalesis Drusia, Butler, Catal. Satyr. B. M. p. 133 (1868); Catal. Fabr. Lep. B. M. p. 33 (1869).

Calysisme Drusia, Moore, Trans. Ent. Soc. Lond. 1880, p. 161.

IMAGO.—Upperside olivaceous ochreous-brown; with a very indistinct pale transverse discal straight narrow fascia on both wings; marginal lines pale ochreous-brown. Cilia pale ochreous. *Forewing* with a prominent large ocellus between the lower median veins. *Hindwing* in male sometimes with a very small lower median ocellus, and in the female with one, or sometimes two indistinctly visible subanal ocelli. Underside cinerous-brown, with a more or less well-defined transverse discal ochreous-white or greyish-white band on both wings; marginal lunular lines ochreous-white and prominent. *Forewing* with a prominent small subapical ocellus, and a large lower median ocellus, each separately encircled by a greyish-white outer ring; very rarely a specimen occurs in which each ocellus has a minute attached ocellule, and then all are encompassed by the outer greyish-white line. *Hindwing* with seven prominent ocelli, of which the second, third, and seventh are the smallest, and all encompassed by a greyish-white outer wavy line. *Male*, on the upperside of the *hindwing* with a subbasal tuft of pale ochreous hairs overlapping a glandular patch of *blackish scales*; and on the underside of the *forewing* with a glandular patch of *blackish scales* on the middle of the submedian vein. The patch, as seen under the microscope, is composed of densely-packed but loosely raised, overlapping, large, broad, oval scales with even front edges. Compared with the patch of yellow scales on the forewing of *C. Visala*, that of *C. Mineus* is two-thirds less in size, the scales are less closely packed, are more laxly raised, and are narrower both anteriorly and posteriorly. Body beneath, legs, and streaks on sides of palpi pale cinereous-brown.

Expanse, $1\frac{6}{8}$ to 2 inches.

DRY-SEASON BROOD (Plate 60, fig. 1 e, f, ♂).

Papilio Otreia, Cramer, Pap. Exot. iv. pl. 314, fig. a, b, ♀ (1780); Hübner, Samml. Exot. Schmett. Beiträge, fig. 79, 80, ♂ (1818).

Papilio Mamerta, Cramer, Pap. Exot. iv. pl. 326, fig. d, ♀ (1780).

Mycalesis Mamerta, Butler, Catal. Satyr. Brit. Mus. p. 136 (1868).

Calysisme Mamerta, Moore, Trans. Ent. Soc. Lond. 1880, p. 162; Journ. Linn. Soc. Lond. Zool. 1886, p. 32.

Mycalesis Hamerta, Hübner, Verz. bek. Schmett. p. 55 (1816).

Mycalesis Ostrea, Westwood, Gen. Diurnal Lep. p. 394 (1851).

Calysisme Ostrea, Moore, Trans. Ent. Soc. Lond. 1880, p. 164.

Mycalesis subfasciata, Moore, Proc. Zool. Soc. 1882, p. 237, pl. 12, fig. 8, ♂.

Mycalesis (Calysisme) Perseus var. *subfasciatus*, Marshall and de Nicéville, Butt. of India, etc. i. p. 122 (1883).

Mycalesis Carpenteri, Butler, Ann. and Mag. Nat. Hist. 1886, p. 183, ♀.

IMAGO.—Male. Upperside olivescient ochreous-brown. *Forewing* with a large median ocellus ringed with yellow. *Hindwing* with a minute imperfect ocellus between the middle and lower median veins. Underside paler ochreous-brown, or greyish-brown; the basal area darkest, and slightly speckled externally; the transverse discal line more or less defined, and sometimes with a slight pale outer border; ocelli indicated by very small blackish spots with white central dot. The glandular patch with its overlapping yellow tuft on the upperside of the hindwing, and the patch on the underside of the forewing dark brown. Female. Upperside similar to the male. Underside more uniformly paler; brown speckled; the transverse discal line more or less diffused; ocelli very small, as in male.

Expanse, ♂ $1\frac{6}{8}$ to 2, ♀ 2 to $2\frac{1}{8}$ inches.

HABITAT.—Northern and Eastern India; Burma; Siam; S.-E. China.

HISTORICAL NOTE.—Of the identity of Cramer's *P. Drusia* with *P. Mineus* I have satisfied myself by actual comparison of South Chinese specimens, identical with the figures of *Drusia*, and with the type specimen of the Linnean *Mineus*, now in the cabinet of the Linnean Society of London. The locality given by both these authors for their species is "China," and the type specimen of both is that of a female. Of the Chinese specimens that have been under our personal examination—and the females of which represent the above-named species—all the males possess the small *black glandular patch* of scales on the underside of the forewing. The Linnean name therefore has been here assigned to the insect bearing the *black patch*, and not to its Indian ally possessing the *yellow patch*.

The dry-season brood of *C. Mineus* differs in both sexes from those of the dry-season form of *C. visala* in their comparatively smaller size, more rounded apex of the forewing, and more even exterior margin of the hindwing; the median ocellus on the upperside of the forewing is also of larger size, and on the underside of both wings the transverse subbasal and discal line are both generally much less defined. In addition to these differences, is the position, size, and colour of the glandular patch on underside of the forewing. This patch, present in the males of both the wet and dry-season brood, is, in *Mineus*, small and blackish, and situated on the middle of the submedian vein, whereas in *Visala* it is large, much longer, extending from middle of the vein to the discal band, and is of a yellow colour.

Of the illustrations of this species on our Plate No. 60, figs. 1, 1a, represent a *wet-season* male from the Naga Hills, fig. 1, c, that of a female from the N.-W. Himalayas, and fig. d, a female from Ranchi; figs. 1, e, f, represent *dry-season* males, the latter figure being from the Kangra type named *subfasciata*.

DISTRIBUTION.—So far as the personal verification of specimens from the localities subsequently referred to have shown, this species is confined, within our area, to North India and Burma. Commencing at the north-west, we find that it

occurs at Kangra, specimens of the wet-season form being in Col. Swinhoe's collection, and the dry-season form (*subfasciata*) was obtained by the Rev. J. Hocking (P. Z. S. 1882, 237). Mr. Doherty, in his notes on the butterflies taken in Kumaon (J. A. S. Beng. 1886, 114) doubtless refers to this species (and not to its ally with the *yellow* glandular patch, with which he there associates it—the latter species, so far as is known to the author, does not occur in the N.-W. Himalayas). He remarks that “the wet-season form is commoner than *C. Perseus* in all the valleys up to 5000 feet, in August and September; the dry-season form first seen on the Lower Sarju about September 23rd;” the caterpillar taken in S. Orissa, and there described by Mr. Doherty as that of the present species, belongs to its ally. Col. A. M. Lang (Ent. Mo. Mag. 1864, 182) records *Drusia*, *Otrea*, and *Polydecta* [the latter probably *Blasius*] as being found in Oudh “appearing in autumn, of feeble flight, flapping weakly about near the ground and amongst long grass and low herbage.” The late Capt. de la Chaumette (Ent. Mo. Mag. 1865, 38) also gives *Drusia* and *Polydecta* as “occurring in Oudh,” and to their being “widely dispersed in the Central Provinces.” In his MS. notes of 1861, Capt. Chaumette also describes the larva as follows:—“*Caterpillar* after first moult, 4 lines long; ground colour bright apple-green, dorsal line dark green; incisions yellowish; on anal segment two little pointed protuberances; abdomen bright apple-green, ventral line dark green; legs green; head rough, pale plum colour, round beneath, flat above and terminating at top in two minute raised and pointed tubercles; stigmata brown, with a pale pupil. After last moult, length 10 lines to an inch; cylindrical and much attenuated posteriorly; rough; colours and general characters as after first moult. Habits lazy. Went into chrysalis August 22nd. *Chrysalis*,—pendular, short, thick, green. *Imago* emerged August 31st. Found on the wing from June to September in Lucknow.” But no specimens from these localities have been seen by the author, and their identity requires verification. Males and females of the wet-season form from Durbunga, in Behar, are in the British Museum Collection, and others from Ranchi, in Chota Nagpore, taken by Mr. Irvine in June, July, and August, are in Col. Swinhoe's collection. A single male of the wet-season form taken by Mr. Mowis, in Sikkim, is also in Col. Swinhoe's possession. Proceeding south-eastward, there are Cachar specimens of both sexes of the wet-season form in the British Museum; from the Naga Hills in the collection of Mr. Jenner Weir, and of Mr. Crowley, the latter also possessing both broods from the Karen Hills. Specimens of both sexes of the wet-season form, from Chittagong and Mandalay, are in the author's possession. In the British Museum are examples of the wet-season form and of the dry-season form (*Carpenteri* Butler) from Pegu. In Rangoon, the wet-season form was taken by Mr. Noble in June (Coll. Col. Swinhoe). In Upper Tenasserim, Mr. Limborg (P. Z. S. 1878, 825) obtained the wet-season form “from

Moulmain to Meetan, at Meetan 3000 feet, and at Taoo 3000 to 5000 feet in March."

DISTRIBUTION OUTSIDE INDIAN AREA.—Mr. Distant (Rhop. Malayana, p. 52) records it from the Malay Peninsula. Specimens of the wet-season brood have been verified from Malacca, Penang, and Sumatra, in the British Museum Collection. Mr. Druce (P. Z. S. 1874, p. 101) records the dry-season form from Chentaboon in Siam. Both Linnæus and Cramer give "China" as the locality of the species. Specimens of both sexes of the wet-season brood labelled "China" are in the British Museum; and also from Hong Kong, both in the British Museum, and in the collection of Mr. Jenner Weir, the latter specimens taken by Bishop Smith—these Chinese specimens being identical with the Linnean type. Specimens from Hainan and from Formosa (P. Z. S. 1866, 360), taken by the late Mr. Robert Swinhoe, are in the author's possession.

CALYSISME NICOBARICA.

Mycalesis Drusia (part), Moore, Proc. Zool. Soc. 1877, p. 583.

Mycalesis (*Calysisme*) *Drusia*, Wood-Mason and de Nicéville, Journ. Asiat. Soc. Bengal, 1881, p. 230;
id. 1882, p. 16.

WET-SEASON BROOD.

IMAGO.—Both sexes distinguishable from *C. Mineus* by their darker colour, especially that of the underside. On the underside the colour is much deeper, and of a purpurescent-brown tint; the ocelli are extremely prominent, those on the forewing larger and of which there are only two, the upper and the lower. On the hindwing the upper ocellus and the fourth and fifth are also larger, the upper second and third being either obsolete or incipiently represented in the male, and extremely minutely developed in the female. The transverse band in the male is narrow, but broader in the female. The glandular patch of scales on the underside of the forewing, and also that on the upperside of the hindwing, in the male, is black.

Expanse, ♂ ♀ $1\frac{7}{8}$ to 2 inches.

HABITAT.—Nicobar Islands.

DISTRIBUTION.—Numerous specimens are in the author's collection, received from Mrs. de Roëpstorff, from the Islands of Kamorta, Nankowri, Pulo Kondul, and Great Nicobar, Kar Nicobar, and Katschall. Specimens are also in the collections of the British Museum, Indian Museum, Calcutta, and Colonel Swinhoe, from the Nicobars.

CALYSISME INTERMEDIA.

WET-SEASON BROOD.

IMAGO.—Male. Upperside dark brown. *Forewing* with slight indication of transverse discal line, and a prominent moderately-large median ocellus. *Hindwing*

with a minute lower median white dot. Underside olivescence-brown, the transverse discal band ochreous-white, narrower than in *C. Mineus*, but not prominent; marginal lines pale ochreous. *Forewing* with a moderate-sized subapical ocellus, and a large median ocellus, each encompassed by a pale violet-grey outer line. *Hindwing* with seven ocelli, the second, third, and seventh minute. Underside of forewing with an elongate *dark brown* glandular patch of scales, the patch nearly twice the size and length of that in *C. Mineus* and occupying a similar position on the submedian vein, but is composed of somewhat longer scales, which are also narrower and anteriorly more curved; the patch on the upperside of the hindwing also composed of similar shaped scales, and overlapped by the subbasal tuft.

Expanse, ♂ 2 inches.

DRY-SEASON BROOD.

IMAGO.—Male. Upperside as in the wet-season brood. Underside paler and ochreous-brown, with numerous slightly darker indistinct short strigæ, the transverse discal line slender and very slightly or not pale bordered, and sometimes with slightly indicated pale outer vein points; in others the discal line is darker and well defined. *Forewing* with the two ocelli indicated by minute white dots, or sometimes four are more or less apparent. *Hindwing* with seven minute white dots. The elongate glandular patch of the same size and composed of the same shaped scales as in wet-season brood.

Female. Upperside. *Forewing* with a somewhat larger median ocellus. *Hindwing* with an indistinct minute median ocellus. Underside pale brownish-ochreous, with numerous indistinct slightly darker brown strigæ; discal transverse line slender, slightly pale bordered, and sometimes with slight vein points; ocelli on both wings minute, represented by dusky dots with white pupil, the fifth most distinct.

Expanse, ♂ $1\frac{3}{4}$ to 2, ♀ 2 to $2\frac{1}{2}$ inches.

HABITAT.—Tenasserim.

Both sexes of the dry-season brood of this species are distinguishable from those of the dry-season brood of *C. Perseus*, by the much larger size of the median ocellus on the upperside of the forewing, both sexes on the underside also having the subbasal and discal transverse line more linear, in addition to the difference of size of the glandular patch and form of its scales, in the male.

DISTRIBUTION.—The male of the wet-season form here described is in the British Museum Collection, and is labelled as from "Silhet" and obtained by Mr. Stainforth; the locality, however, is very doubtful, as that gentleman's collection was from various other localities. The dry-season form, of which there are both sexes, are from the Thoungyeen Valley, Tenasserim, and others, obtained by Dr. J. Anderson from the Mergui Archipelago, are in the author's possession.

CALYSISME VISALA.

WET-SEASON BROOD (Plate 63, fig. 1, 1a, b, c, d, e, f, g, h, ♂ ♀).

Mycalesis Mineus (part), Moore, Proc. Zool. Soc. 1878, p. 825.

Mycalesis Mineus, de Nicéville, Journ. Asiat. Soc. Bengal, 1885, p. 42; *id.* 1886, p. 235.

Mycalesis (*Calysisme*) *Mineus* (part), Marshall and de Nicéville, Butt. of India, etc. i. p. 117 (1883).

Elwes and de Nicéville, Journ. Asiat. Soc. Beng. 1887, p. 417. Elwes, Trans. Ent. Soc. 1888, p. 304. Hampson, Journ. Asiat. Soc. Bengal, 1888, p. 348.

IMAGO.—Male. Upperside brown. *Forewing* somewhat more acute at the apex, with an ocellus similar but slightly larger than in *C. Mineus*. *Hindwing* with an elongated glandular patch of pale yellow scales, overlapped by the subbasal yellow tuft; these scales being of exactly the same size, form, and disposition, as those present on the patch on the underside of the forewing here described, the overlapping hairy tuft consisting of long straight filaments, each arising from a distinctly visible minute round pore. Underside similar to *C. Mineus*, the transverse discal pale ochreous-white band narrower. *Forewing* with a similar subapical and a large lower ocellus, each encircled by a pale violaceous outer ring; the glandular patch on the submedian vein is two-thirds larger than that in *C. Mineus*, extending from the middle of the vein to the transverse discal pale band, and is composed of pale yellow scales; these scales (as seen under the microscope) are very densely packed, overlap each other, and slightly raised, are large and rather long, broad and somewhat broadest anteriorly, with evenly-rounded front edge, and very short peduncle; no slender intervening scales present;—this patch in *C. Mineus* being short, situated on the middle of the vein, and composed of different shaped blackish scales. *Hindwing* with similar ocelli to *C. Mineus*.

Female. Upperside. *Forewing* with more acute apex than in *C. Mineus*, the ocellus also larger. *Hindwing* with two median ocelli. Underside paler than in male; the transverse discal band narrow; ocelli the same as in male, and in some specimens the subapical has a minute lower attached ocellule.

Expanse, ♂ $1\frac{6}{8}$, ♀ 2 inches.

DRY-SEASON BROOD (Plate 64, fig. 1, 1a, b, c, d, e, f, g, h, i, ♂ ♀; larva and pupa).

Mycalesis Visala, Moore, Catal. Lep. Mus. E. I. C. i. p. 230 (1857). Butler, Catal. Satyr. Brit. Mus. p. 133 (1868).

Calysisme Visala, Moore, Trans. Ent. Soc. Lond. 1880, p. 164.

Mycalesis Perseus, var. *Visala*, Marshall and de Nicéville, Butt. of India, etc. i. p. 121, pl. 16, f. 52 (1883).

Calysisme indistans, Moore, Trans. Ent. Soc. Lond. 1880, p. 164 ♂ ♀; Journ. Linn. Soc. Lond. Zool. 1886, p. 32.

Mycalesis Perseus, var. *indistans*, Marshall and de Nicéville, Butt. of India, etc. i. p. 122 (1883).

Mycalesis (*Calysisme*) *Mineus*, form *indistans* et *visala*. Hampson, Journ. Asiat. Soc. Bengal, 1888, p. 348.

IMAGO.—Male and female. Upperside dark ochreous-brown, with distinct

cinereous-brown outer margins. *Forewing* more or less angular at the apex, and darker brown before the exterior margin; with a very large median, black, white pupilled ocellus with yellow outer ring, which sometimes has a minute upper, and in some specimens both an upper and a lower, minute ocellule attached to it, and enclosed within the yellow ring; a minute subapical ocellus also sometimes present; transverse discal line distinct. *Hindwing* with, or without, a single very minute sub-anal white dot in the male, and two in the female. Underside either pale brownish-testaceous or various shades of cinereous-ochreous, greyish-brown, with a more or less distinct dark brown slender subbasal line and a discal transverse line, both being rarely slightly denticulated, also, sometimes the discal line is even and slightly pale bordered, or again, is dark brown and forming a suffused darker fascia. *Forewing* with two or four, indistinct very minute white-pupilled blackish spots, the lowest sometimes more prominent and larger. *Hindwing* with a series of seven white-pupilled spots, of which the third, and sometimes the three from the anal angle are larger and blind or more fully developed, the others very minute; beyond is a submarginal row of indistinct blackish minute slender denticules, or marginal lines. In some of the specimens of both sexes of this brood reared by Mr. de Nicéville in Calcutta, the ocelli on underside of both wings are more or less fully developed, though of course small. *Male* with an elongate yellow glandular patch of scales on the submedian vein on the underside of the forewing, and on the upper-side of the hindwing a similar ochreous coloured patch overlapped by a subbasal tuft of yellow radiating hairs.

Expanse, ♂ $1\frac{6}{8}$, ♀ $2\frac{2}{8}$ inches.

HABITAT.—North-Eastern, Central, and Southern India; Burma.

EGG.—“Almost white, semitransparent; laid singly or in batches on both sides of blades of grass.”

YOUNG CATERPILLAR.—“Pale green; head black, bearing two very obtuse black horns on the crown, and with the caudal processes very small.”

ADULT CATERPILLAR.—“After last moult pale reddish, finely mottled with greenish ochreous and other colours. When full-grown about $1\frac{1}{4}$ inch long, fusiform; anal segment with two short divergent processes; dorsal line very pale greenish; with lateral oblique obscure darkish stripes; head blackish, armed with two divergent blunt conical reddish horns; both head and horns thickly set with small rough tubercles; the face covered with short hairs; the whole body rough or rugose and very thickly set with minute tubercles; legs and underside of body coloured like the upper surface.”

CHRYSALIS.—Suspended by tail. “Semitransparent green; smooth; thorax very convex and constricted at base of the abdomen; spiracles black.” (L. de Nicéville.)

Both sexes of the dry-season brood of this species differ from those of the dry-

season brood of *C. Mineus* in their general larger size, more angular apex to the forewing, and uneven exterior margin of the hindwing. On the forewing above, the median ocellus is conspicuously of larger size. On the underside, the transverse subbasal and the discal line are both well defined and prominent. The *male* is distinguishable by having the *glandular patch* on both wings clothed with scales of a *yellow* colour (not blackish, as in *C. Mineus*), the patch on the underside of the forewing being also of much greater length, and extending upon the submedian vein from the middle to the transverse discal line, and it is moreover, composed of differently shaped scales. According to Mr. de Nicéville (Butt. Ind. i. 122) "specimens (of the dry-season form) taken in Lower Bengal (named *indistans*) are paler coloured both on the under and upperside than in those from the Sikkim Himalayas. This variety (*indistans*) is developed in the plains of N.-E. India, and is most distinctly specialized in the district of Calcutta. It is found as far south as Orissa, and as far north as Upper Assam, but in these localities it is less distinct, specimens from Assam being almost if not quite inseparable from Sikkim examples."

Of the illustrations on our Plate 63, of the wet-season brood of *C. visala*, fig. 1 represents a Sikkim male; fig. 1a, the fore and hindwing of male, showing the glandular patches; figs. 1, b, c, a Calcutta female; figs. 1, d, e, Calcutta males; and figs. 1, f, g, h, Nilgiri males. On Plate 64, representing the *dry-season brood*, figs. 1, 1a, b, are Sikkim male and female (these being the types of the form named *Visala*); figs. 1, c, d, are Calcutta male and female (the types of the form named *indistans*); fig. 1, e, the larva and pupa (reproduced from Mr. de Nicéville's figures in Journ. As. Soc. Beng. 1886, pl. 12), and figs. 1, f, g, h, are males and female from the batch reared in Calcutta by Mr. de Nicéville, in October, 1885, from eggs deposited by a female of the previous wet-season brood, and which have been kindly sent to me for examination; fig. 1, i, is that of a Nilgiri male from Mr. Hampson's Collection.

DISTRIBUTION.—Commencing on the north-east, specimens have been verified of both sexes of the wet-season form from Sikkim, taken by Mr. Paul Mowis in May, and a male from Buxa in Bhotan; also of the dry-season form from the Sikkim Terai, taken in September, October and December, and in the Runjit Valley, 1200 to 3500 feet, in October, in Col. Swinhoe's Collection. Mr. Elwes (Tr. Ent. Soc. Lond. 1888, 304) remarks that "Mr. de Nicéville's experiments in breeding have thrown some light on the seasonal forms of this species in Calcutta, but I cannot say to what extent his conclusions are borne out in the different climate of Sikkim. Mr. Otto Möller, however, has little doubt that the *M. Visala* is the dry-weather form, and finds it commonly from the Terai up to about 5000 feet, at the end of the rains and on to December. The ocellated form he takes at the same elevations from April to September. I hardly think that the various broods will prove to be constantly

distinguishable from each other, except in localities where the seasons are better marked than in Sikkim." Mr. de Nicéville (Butt. Ind. i. 122) says that the dry-season form "is the commonest in the Sikkim Terai and Hills, and that it occurs also in Upper Assam." Mr. J. Wood-Mason (J. A. S. Beng. 1887, 348) records "seventy-five males, and seventeen females of the wet-season form from Cachar, taken in Silcuri and the forests around between 26th May and 25th August; a single male of the dry-season form being obtained in Silchar on 3rd April." The dry-season form has been taken at Malda by Mr. Irvine (Coll. Swinhoe). From the Calcutta district we possess males and females of the wet and dry-season forms, taken by the late Mr. W. S. Atkinson, A. E. Russell, and more recently by Mr. Charlton Swinhoe. Mr. Rothney (Ent. Mo. Mag, 1882, 34) records it as common at Barrackpore, near Calcutta, "being fond of shade, and settling mostly in long grass." Mr. de Nicéville (J. A. S. Beng. 1885, p. 42) states that the ocellated form is "not uncommon during the rainy season," and the unocellated form "common during the cold and hot weather." Examples of the wet-season form from Durbunga in Behar are in the British Museum. Examples of the wet season form from Pachmari in Central India, taken by Mr. Betham in October, are in Col. Swinhoe's collection. From the Bombay district, specimens of the wet-season form taken by the late Dr. Leith, and by Col. Swinhoe in August, are in the author's collection, and also of the dry-season form taken at Wangni in the Thannah district in November. These Bombay examples, of both the wet and dry-season forms of this species, are much smaller than both the North and South Indian specimens, the males measuring only $1\frac{1}{2}$ and the females $1\frac{1}{2}$ to $1\frac{3}{4}$ inch in expanse. From S. India, a male of the wet-season form, taken at Eridge in Trevandrum by Mr. H. S. Fergusson, is in Col. Swinhoe's Collection, and is identical in size and markings beneath with the same sex from Calcutta. Mr. Hampson (J. A. S. Beng. 1888, 348) obtained it on the Nilgiris, taking the wet-season form, as recorded in his MS. notes, from July to September, and the dry-season form (which are smaller than N. Indian examples) from October to February. In Burma, Mr. O. Limborg (P. Z. S. 1878, 825) took it "at Moulmein, Meetan 3000 feet, and Taoon 3000 to 5000 feet, in March;" the dry-season form has also been taken in the Thoungyeen forest, Tenasserim; and numerous specimens were obtained by Dr. J. Anderson (J. Linn. Soc. Lond. 1888, 32) from December to March, in the Mergui Archipelago.

LIFE-HISTORY OF THE DRY-SEASON BROOD.—In the Journal of the Asiatic Society of Bengal, 1886, p. 236, Mr. de Nicéville (pl. xii. f. 3) figures the larva and pupa of this species, and gives the following details of the result of his breeding experiment of the dry-season brood in Calcutta. "On Sept. 1st I placed two female *M. Mineus* [the males of which have yellow patches on the wings] in a breeding-cage with glass top and sides, into which I had previously introduced a pot of growing grass. The

same evening the insects laid about 30 eggs singly and in batches on both sides of the blades of grass indiscriminately. The eggs are almost white, shining, and semitransparent. On Sept. 5th, one female died, and her body on being opened was found to be quite empty and devoid of eggs. On Sept. 6th, the other female died, and most of the eggs hatched. As usual the young larvæ made their first meal off the empty egg-shells. They are pale green with a black head bearing two very obtuse black horns on the crown, and with the caudal processes very small. Down to the last change of skin, the larvæ are pale green without any conspicuous markings; after that change they become pale reddish, finely mottled with greenish, ochreous, and other colours, the general effect being somewhat that of the brownish colour of a grass stalk to which the bases of the dead leaves are attached. At this stage, the larvæ remain chiefly amongst the bases of the grass stalks, where they are very difficult to be seen. When full grown, they are about $1\frac{1}{4}$ inches long; the first segment is somewhat narrower than the head, the body gradually thickens to the middle, and then equally regularly and gradually tapers to the anal segment, which is furnished with two short, slightly divergent pointed processes or tails; there is a very faint greenish dorsal line, with about six obscure darkish oblique streaks at the sides, the four middle ones of which are the most prominent; the head is blackish, armed with two divergent, blunt, conical horns, which are obscure reddish like the body; both head and horns are thickly set with small rough tubercles, and the face is covered with short hairs; the whole of the body is very rough or rugose, and very thickly set with minute tubercles; the legs and underside of the body are coloured like the upper surface. The pupa is usually pale semitransparent green without markings, quite smooth, with the thorax very convex and constricted at the base of the abdomen, and with the spiracles black. I obtained one differently coloured pupa: this was rich reddish-brown, with the spiracles prominently bright yellow. The larvæ turned to pupæ between Sept. 28th and October 4th, and the butterflies emerged between October 5th and October 12th. The imagines, though variable, were all nearer to *M. indistans* than to *M. mineus*, while the majority were true *M. indistans*."

Mr. W. Doherty (Journ. Asiatic Society Bengal, 1886, p. 114) gives the description of a caterpillar, assigned by him to be that of *M. mineus*, but whether of the wet or dry-season brood is not stated, as follows:—"Caterpillar taken by me in a meadow at Sonakala, in Southern Orissa. It is fusiform, brownish-green, tapering greatly at both ends. Head rather large, finely pubescent, dark fuscous marbled with paler, a smooth plate in the middle of the forehead, two short, rough triangular horns; neck greatly constricted; body rough and prickly rather than pubescent, finely wrinkled transversely, six wrinkles to each segment, the second twice as broad as the others; a faint darker dorsal line chiefly visible posteriorly; a lateral line of

oblique dark streaks, one to each segment; last segment prolonged and ending in two rough, triangular, slightly divergent horns. It has the habit of resting for hours with its chin strongly retracted, and its horns projecting forwards. The fourth eye [?] from above is very much larger than the others, and the head with its short ear-like horns looks very much like a cat's. Before undergoing its metamorphosis, the larva became in colour a clear transparent green, unmarked except by the black dots of the spiracles. Chrysalis green, smooth, its envelope transparent, shorter and thicker than the chrysalis of *Melanitis*, strongly constricted between the thorax and abdomen. The caterpillar feeds on various grasses, and is strictly nocturnal."

Messrs. J. Davidson and E. H. Aitken, in their "Notes on the Butterflies of the Bombay Presidency," also give a description of the larva [presumably of *visala*] under their name of *mineus*, as follows:—

"*Larva* spindle-shaped; head larger than neck and surmounted with two short protuberances; last segment elongated and ending in two fine points; colour some shade of brown with a lateral dark line, sometimes indistinct, formed by a chain of minute cruciform marks. This colour is assumed when the larva is half-grown; at first it is green with a black head. *Pupa* oval, without angle or irregularity of any kind, very like that of *Melanitis*, but proportionally thicker, light green with a pale line across the wing-cases. We got one specimen on Rice, in July, and a dozen the following June, from eggs laid by the unocellated form in captivity." (Journ. Bombay Nat. Hist. Soc. 1890, p. 267.)

CALYSISME SUBDITA.

WET-SEASON BROOD (Plate 65, fig. 1, 1a, b, c, d, ♂ ♀).

IMAGO.—Male and female. Upperside dark olivaceous ochreous-brown, with a very faint pale transverse discal narrow fascia, and distinctly paler marginal lines; both most apparent in the female. Cilia cinereous-ochreous. *Forewing* more rounded at the apex than in *C. visala*; with a large prominent median ocellus. *Hindwing* with one, occasionally two, small slightly defined median ocelli. Underside dark greyish ochreous-brown or fuliginous-brown; with a well-defined whitish transverse discal band, and marginal ochreous lines. *Forewing* with one small subapical ocellus and two conjoined lower median ocelli, the latter pair being disposed one between the middle and lower medians (which is the largest) and the other between the lower median and the submedian vein; the lowest ocellus, i.e., that between the median and submedian, being small and *always present in both sexes*; both the upper and lower series are separately encircled by a pale greyish-white outer line. In some specimens, but rarely, there is a minute more or less complete

contiguous ocellus between the middle and upper medians, and encircled within the pale outer line of the lower series. Again, rarely also a specimen of the female occurs, in which there is an additional upper minute ocellus (making six) disposed above the upper radial veinlet. *Hindwing* with seven prominent black ocelli, encompassed by a greyish-white wavy outer line. *Male*, on the underside of the forewing, with an elongated glandular patch of *ochreous yellow* scales upon the submedian vein extending from its middle to the discal pale band; and on the hindwing, above, with a subbasal tuft of pale hairs exserted or overlapping a glandular patch of *ochreous yellow* scales.

Expanse $1\frac{7}{8}$ to 2 inches.

DRY-SEASON BROOD (Plate 65, fig. 1, e, f, g, h, ♂ ♀).

Male and female. Upperside similar to the wet-season brood. Underside paler in colour, either of a greyish or ochreous brown; the transverse discal whitish line very narrow, but distinct; the ordinary subbasal transverse wavy line generally apparent. *Forewing* with five very small ocelli disposed as in the ocellated brood, those of the female minute or anteriorly represented by white dots, the lowest one situated between the lower median and submedian vein being always present or indicated in both sexes. *Hindwing* with the ocelli also minute or anteriorly indicated by a white dot. *Male* with an elongated glandular patch of *yellow scales* on underside of the forewing, and a *yellow patch* overlapped by the subcostal tuft on upperside of the hindwing.

Expanse $1\frac{7}{8}$ to 2 inches.

HABITAT.—South India; Ceylon.

DISTRIBUTION.—Of the ocellated form, males and females from Travancore and Cochin are in the author's possession, and also of the unocellated form taken in the Travancore Hills from 1700 to 3000 feet in March and April. Females of the ocellated form taken at Rajamundry, Madras, in July, are in Col. Swinhoe's Collection, as also a male of the ocellated form labelled 'Kangra Valley,' which latter locality is very doubtful and probably erroneous—no other example of the species possessing *yellow* glandular patches being known to the author from the N. W. Himalayas. In the Hewitson Collection there is a male of the ocellated form labelled Nilgiris, and there placed as a representative of *Samanta Malsara*. From Ceylon, Major Yerbury has recently sent us examples of both sexes of the ocellated form taken at Trincomli in August, and of the unocellated form taken in October and November, 1890.

Of the illustrations of this species on Plate No. 65, figs. 1, 1a, b, c, represent males and females of the wet-season brood, and figs. 1, d, e, f, g, of the males and female of the dry-season brood.

CALYSISME RAMA.

WET-SEASON BROOD (Plate 57, fig. 3, 3a, ♂).

IMAGO.—*Male*. Upperside olivescient ochreous-brown; marginal lines indistinct. *Forewing* with a distinct transverse medial discal line, and a large prominent median black ocellus with white pupil and narrow ochreous-yellow outer ring, above which is a very minute subapical ocellus between the radials. *Hindwing* with a less distinct small ocellus between the middle and lower median veins; a subbasal tuft of yellow hairs overlapping a small glandular patch of dark brown scales extending below the first branch of the subcostal and surrounded by the ordinary nacreous costal area. Underside pale ochreous-brown, palest externally; marginal lines distinct; with a moderately broad pale ochreous-yellow transverse discal fascia, the inner border of which is sharply defined by a dark brown line, the outer border being diffused. *Forewing* with a small prominent subapical and a large median ocellus; and with a small glandular patch of dull brown scales on middle of the submedian nacreous area. *Hindwing* with seven ocelli, the upper second and third, and the seventh minute and almost obsolete, the other four prominent. Body beneath, legs, and sides of palpi pale ochreous; club of antennæ blackish and tipt with ochreous.

Expanse $1\frac{7}{8}$ inch.

HABITAT.—Ceylon.

A single specimen of the male of this species (presumably of the wet-season brood) taken at Udagama, in the West Central District of Ceylon, by Mr. Reginald Poole, and now in the collection of Mr. E. E. Green, is all that is yet known to the author.

CALYSISME ANDAMANA.

WET-SEASON BROOD (Plate 66, fig. 1, 1a, b, ♂ ♀).

Mycalesis Drusia (part), Moore, P.Z.S. 1877, p. 583.

IMAGO.—*Male*. Upperside. Similar to *C. Nicobarica*, but darker brown. *Forewing* with a somewhat larger median ocellus with a narrow yellow outer ring. *Hindwing* with a minute ocellus between the middle and lower medians. Underside of the same purpurescent-brown, and the transverse pale discal line, as in *C. Nicobarica*. *Forewing* with two similar ocelli, an upper and a lower, the latter somewhat larger. *Hindwing* also with similar ocelli, the upper second and third and the seventh being minute. The glandular patch on underside of the forewing, and that also on the upperside of the hindwing overlapped by the subbasal tuft, are both of them elongate and composed of yellow scales, both patches in *C. Nicobarica* being short and composed of black scales. Female larger. Upperside much darker brown than in this sex of *C. Nicobarica*. *Forewing* with larger median ocellus, and with a more or less developed minute subapical ocellus. *Hindwing* with either one

or two, more or less defined, rather large median ocelli. Underside also darker coloured than in *C. Nicobarica*, the transverse discal pale band and ocelli similar, but the lower ocellus of the forewing somewhat larger; the second and third on the hindwing present but small.

Expanse ♂ $1\frac{7}{8}$, ♀ $2\frac{1}{8}$ inches.

DRY-SEASON BROOD (Plate 66, fig. 1, c, d, ♂).

Male. Larger than the same sex of the ocellated or wet-season brood. Upperside paler, the colour being olivescent ochreous-brown. *Forewing* with a minute subapical ocellus and large lower median ocellus. *Hindwing* with a small ill-defined lower median ocellus. Underside paler olivescent ochreous-brown than the upperside. Both wings with a slender indistinct transverse subbasal line and a distinct discal line, the latter slightly pale bordered. *Forewing* with a subapical and lower median white dot. *Hindwing* with seven minute ocelli, the fifth somewhat the largest and blackest. The glandular patch on both wings elongated and composed of *ochreous yellow scales*. Female. Upperside darker coloured than the male. Underside also darker olivescent-brown, the transverse discal pale band more defined. *Forewing* with two minute upper ocelli and a small lower median black ocellus. *Hindwing* with the ocelli more defined, excepting the second and third, which are obsolescent.

Expanse ♂ 2, ♀ $2\frac{2}{8}$ inches.

HABITAT.—Andamans.

DISTRIBUTION.—Specimens of this species from Port Blair, both of the wet and dry-season broods, received from Mr. F. A. de Roepstorff, are in the author's collection. Others, from Port Mouat, are in the cabinets of the British Museum, and from Port Blair in that of Col. Swinhoe, and the Indian Museum, Calcutta.

INDO-MALAYAN ALLIED SPECIES OF CALYSISME.—*C. Igoleta*, Felder, Wien. Ent. Monats. 1863, p. 127. Semper, Reisen Arch. Philippen, Lep. i. p. 52, pl. 10, fig. 17, 18, ♂ ♀ (1886). *Habitat*. Philippines.—*C. Justinella*, Butler, Catal. Satyr. Brit. Mus. p. 135 (1868). Semper, R. Arch. Phil. Lep. i. p. 51, pl. 10, fig. 15, 16, ♂ ♀ (1886). *Habitat*. Philippines.—*C. sp. nov.* (Mineus *apud* Semper), l. c. p. 51, pl. 10, fig. 11, 12, ♂ ♀. *Habitat*. Philippines.—*C. sp. nov.* (Drusia *apud* Semper), l. c. p. 51, pl. 10, fig. 13, 14, ♂ ♀ (1886). *Habitat*. Mindanao.—*C. Horsfieldii*, Wet-season brood (Plate 66, fig. 2, 2a, b ♂). n. sp. IMAGO. Male. Upperside dark olivescent ochreous-brown; marginal lines paler. Cilia cinereous-brown. *Forewing* with a transverse discal dusky line, and a moderate-sized median black ocellus with white pupil and dull ochreous outer ring. Underside dark olivescent brown, or dark olivescent ochreous-brown. Both wings with a prominent yellowish-white narrow transverse discal band, and pale ochreous-white marginal lines. *Forewing* with a linear series of five prominent moderately-small

ocelli; the second and third smallest, the fourth largest, and all encompassed by a pale virescent-white outer line. *Hindwing* with a linear series of seven similar sized prominent ocelli; the second, third, and seventh being the smallest. Female. Upperside. *Forewing* with the median ocellus as in male. *Hindwing* with a distinct very small lower median ocellus. Underside paler olivaceous-brown; transverse discal white band and ocelli as in male, except that the lower small ocellus on the forewing is undeveloped. Male on the underside of the forewing with a glandular patch of dark *ochreous-brown* scales on middle of the submedian vein, these scales being long and narrow, but broadest anteriorly with rounded fronts. On the upperside of the hindwing is the ordinary subbasal tuft of yellow hairs, the tuft only partially overlapping a very prominent and abnormally elongated glandular patch of bright *ochreous-yellow* scales, these scales being somewhat shorter and broader than those on the forewing, the patch itself extending from above the base of the first subcostal and then bending through the interspace between its two branches to nearly half-way towards the outer margin of the wing, and thus being prolonged outwardly much beyond the tuft of hairs, its end terminating straight and erect between the two veins. Expanse, ♂ $1\frac{5}{8}$ to $1\frac{7}{8}$; ♀ $1\frac{7}{8}$ inch.—Dry-season brood (Plate 66, fig. 2, c ♂).—Male. Upperside as in the wet-season brood. Underside darker brown basally, paler and virescent-brown externally, the transverse discal band of nearly the same width and as prominently defined; marginal lines less defined. *Forewing* with the five linearly-disposed nearly obsolescent minute ocelli, of which the upper and the fourth are the most developed. Hindwing with seven small indistinct ocelli, of which the second and third are minute and nearly obsolete. Expanse ♂ $1\frac{7}{8}$ inch. *Habitat*. Java (Horsfield); Sumatra; Nias. In Coll. F. Moore; British Museum; Hewitson.—*C. Distanti* (Plate 66, fig. 3) n. sp. An allied species, the male possessing on upperside of hindwing a similar elongate *bright yellow patch of scales* prolonged conspicuously beyond the hairy tuft, but is curved on its terminating edge between the veins; the upperside of the wings olivaceous-brown, ocellus similar; underside dark olivaceous-grey, the transverse discal line narrower than in *Horsfieldii* and olivaceous-white, marginal lines also olivaceous-white; *forewing* with only two moderate-sized ocelli, a subapical and a median, each encircled by a pale outer olivaceous-white ring; hindwing with seven ocelli, all encompassed by a similar coloured outer line. Expanse ♂, $1\frac{6}{8}$ inch. *Habitat*. Selangir, Malay Peninsula. In Coll. Swinhoe.

Genus CULAPA.

Culapa, Moore, Proc. Zool. Soc. 1878, p. 825; Trans. Ent. Soc. Lond. 1880, p. 165.

Mycalesis (*Culapa*), Marshall and de Nicéville, Butt. of India, etc. i. p. 126 (1883).

IMAGO.—Forewing elongate, triangular; costa slightly arched, apex produced and obtusely rounded, exterior margin very oblique and slightly concave; cell long

and narrow; third subcostal branch emitted near the fourth; discocellulars deeply concave; the costal, median, and submedian vein swollen at the base. *Hindwing* somewhat quadrate, apex slightly acute, exterior margin convex hindward and truncated at anal angle, abdominal margin long; cell triangular; discocellulars very oblique and long; middle median branch emitted at some distance before lower end of the cell. *Male* on the upperside of the hindwing with a tuft of fine hairs exserted from base of the cell and overlapping a small glandular patch of scales above the base of first subcostal branch. *Antennæ* with a well-formed slightly stout club. *Palpi* much flattened, compactly clothed with short hairs beneath, apical joint slender, naked, pointed. *Eyes* hairy.

Type.—C. *Mnasicles*.

CULAPA MNASICLES.

(Plate 67, fig. 1, 1a, ♂ ♀).

Mycalesis Mnasicles, Hewitson, Exotic Butt. 111. *Myc.* pl. 5, figs. 32, 33, ♂ (1864). Butler, Catal. Satyridæ Brit. Mus. p. 141 (1868). Druce, Proc. Zool. Soc. 1873, p. 339. Distant, Rhop. Malayana, p. 417, pl. 37, fig. 5 (1886).

Culapa Mnasicles, Moore, Proc. Zool. Soc. 1878, p. 825; Trans. Ent. Soc. Lond. 1880, p. 126.

Mycalesis (Culapa) Mnasicles, Marshall and de Nicéville, Butt. of India, etc. i. p. 126, pl. 16, fig. 51, ♀ (1883).

IMAGO.—Male and female. Upperside deep ochreous-brown, brightest about the discal area. *Forewing* with a minute subapical and a very large prominent median ocellus, each black with white pupil and ochreous outer ring; in some specimens the subapical ocellus is absent. *Hindwing* with a very small ill-defined lower median ocellus, and a very indistinct submarginal dusky lunular line. Underside pale brownish-ochreous in male, female more cinereous-brown externally. Both wings with a transverse subbasal and a discal distinct dark ochreous-brown slightly irregular line, a small lunular dot on middle of the discocellulars, a submarginal indistinct lunular line, distinct marginal lines, and a dusky outer discal shade. *Forewing* with a series of five very minute ocelli, the upper second generally rudimentary and the lowest composed of a larger whitish spot only. *Hindwing* with a series of seven very minute ocelli. *Male* on the upperside of the hindwing with a tuft of fine hairs exserted from base of the cell and overlapping a small glandular patch of scales above base of the first subcostal branch. *Body* beneath, palpi, and legs pale ochreous-brown. *Antennæ* brighter ochreous beneath and at the tip, the club with a blackish band.

Expanse $2\frac{1}{4}$ to 3 inches.

HABITAT.—Upper Burma, Tenasserim; Malayia.

DISTRIBUTION.—According to Major C. H. E. Adamson (List of Burmese Butterflies, 1889, p. 7), "this insect was plentiful near Paphoon on the Salween, Burma, in November, 1878. It occurs also in Tavoy, and Bhamo." Examples

have been obtained in Moulmein. Mr. O. Limborg (P. Z. S. 1878, 825) obtained it in Upper Tenasserim at "Ahsown 2000 feet and at Meetan 3000 feet, in April." Captain C. T. Bingham (Butt. Ind. i. 126) "took a single female in April in the Thoungyeen forests." A male from Tavoy is recorded by Mr. J. H. Elwes (J. A. S. Bengal, 1887, 418).

DISTRIBUTION OUTSIDE INDIAN AREA.—In the Malay Peninsula, Mr. Distant (Rhop. Malay. p. 417) records its capture at Perak. It also occurs in Sumatra and Borneo.

Genus PACHAMA.

Pachama, Moore, Trans. Ent. Soc. Lond. 1880, p. 165.

Mycalesis (Pachama), Marshall and de Nicéville, Butt. of India, etc. i. p. 124 (1883).

IMAGO.—Wings large and broad, but comparatively shorter than in *Samanta*. *Forewing* with the costa much arched in the middle, apex rounded; exterior margin slightly oblique and convex; the costal, median, and submedian vein swollen at the base. *Hindwing* somewhat bluntly conical; anterior margin slightly arched, apex slightly angled, exterior margin very oblique and scarcely convex; first subcostal branch emitted at some distance before end of the cell; the cell long, much pointed at the end; discocellulars very oblique and wavy; radial from a slight angle near the subcostal. Cilia prominent. *Male* on upperside of the hindwing with a slight subbasal tuft of fine hairs overlapping a glandular patch of scales. *Palpi* slender, tip long and pointed. *Eyes* hairy. *Antennæ* with a gradually formed club.

Type.—*P. Mestra*.

PACHAMA MESTRA.

(Plate 67, fig. 2, 2a, ♂).

Mycalesis Mestra, Hewitson, Exotic Butt. iii. p. 79. *Myc.* pl. 1, fig. 2 (1862). Butler, Catal. Satyr. Brit. Mus. p. 137 (1868).

Pachama Mestra, Moore, Trans. Ent. Soc. Lond. 1880, p. 165.

Mycalesis (Pachama) Mestra, Marshall and de Nicéville, Butt. of India, etc. i. p. 124 (1883).

IMAGO.—Male and female. Upperside dark olivescient ochreous-brown. Cilia white. *Forewing* with a transverse discal narrow ochreous-white band, a small sub-apical ocellus and a moderate-sized one between the middle and lower medians, each with a white pupil and narrow ochreous outer ring; marginal lines pale and wavy. *Hindwing* with the transverse pale discal band of the underside indistinctly visible; a prominent moderate-sized median ocellus, and two marginal ochreous-white lines, the outer one most prominent. Underside dark olivescient ochreous-brown, the basal area undulated with pale ochreous and brown strigæ; the transverse discal band broad, prominent, pale ochreous-yellow; exterior marginal lines also ochreous-yellow. *Forewing* with two, sometimes three, small prominent apical ocelli, the median ocellus as

above but prominent. *Hindwing* with three prominent apical small decreasing ocelli, and two larger anal ocelli, all deep black with white pupil and slender bright ochreous outer ring, the anal one being bipupilled. *Male* on upperside of the hindwing with a slight subbasal tuft of fine hairs overlapping a *glandular patch of scales*. Legs, streaks on side of palpi, and antennæ pale ochreous, band on club blackish.

Expanse, $2\frac{2}{8}$ to $2\frac{4}{8}$ inches.

HABITAT.—Bhutan; Assam; Khasia Hills.

DISTRIBUTION.—Mr. L. de Nicéville (J. A. S. Beng. 1887, 350) records this species from Bhutan, Assam, and the Khasia Hills. Both sexes were taken in the Khasias by Col. Godwin-Austen.

PACHAMA SUAVEOLENS (Plate 67, fig. 3, 3a, b, ♂ ♀).

Mycalesis (Pachama) Suaveolens, Wood-Mason and de Nicéville, Butt. of India, etc. i. p. 125 (1883),

♂; *id.* Journ. Asiatic Soc. Bengal, 1887, p. 349, pl. xvi. fig. 1, ♂.

Mycalesis Nicotia, Elwes, Trans. Ent. Soc. Lond. 1888, p. 306, pl. ix. fig. 5, ♀.

IMAGO.—Male and female. Upperside dark olivescient ochreous-brown, the transverse discal pale line very indistinct; marginal lines pale brownish-ochreous, palest on the hindwing. Cilia cinereous-white, prominent. *Forewing* with two subapical black ocelli, each with white pupil and narrow ochreous outer ring, the upper one always minute and the lower moderately large, the median ocellus large. *Hindwing* with a moderately-large lower median ocellus, and sometimes in both sexes a minute ocellus is present between the middle and upper medians, and in others there is also a very minutely indicated ocellus between the upper median and the radial. Under-side darker olivescient-brown, not striated, but the hindwing basally is thickly studded with olivescient-ochreous scales; transverse discal band prominent, about half the width of that in *P. Mestra*, and on the forewing it is slightly excurved and its border less regular; marginal lines pale olivescient-ochreous. *Forewing* with two moderate-sized prominent subapical ocelli, each with white pupil and narrow ochreous ring, above the upper is an extremely minute attached ocellule between the end of subcostals, and below the second a minute fourth attached ocellule is present between the lower radial and upper median; below these there is a large prominent ocellus between the middle and lower medians and a minute less developed ocellule between the middle and upper medians, each series being separately encompassed by a pale olivescient-ochreous outer ring. *Hindwing* with seven prominent ocelli, of which the four upper are small but of nearly equal size, the fifth the largest, the other two decreasing in size, each one encircled by a pale olivescient-ochreous speckled outer ring. *Male* with a subbasal tuft of ochreous hairs overlapping a *glandular patch of ochreous*

scales. *Abdomen* and legs beneath and streaks on sides of palpi pale olivescens-ochreous. *Antennæ* brown above, annulated with brown and pale ochreous on basal half beneath, the anterior half and tip bright ochreous with black band on the club.

Expanse, ♂ $2\frac{1}{4}$ to $2\frac{1}{2}$, ♀ $2\frac{3}{8}$ to $2\frac{4}{8}$ inches.

HABITAT.—Cachar, Sikkim.

DISTRIBUTION.—“A single male was taken on Nemotha, North Cachar, at an elevation of 3300 feet, in September; Mr. Wood-Mason noting that the scent-glands and fans, which are much as in *M. Malsara*, emitted a powerful and delicious odour resembling that of vanilla for some hours after the death of the insect.” (Mr. de Nicéville, Butt. Ind. i. 125.) “Occurs very locally in Sikkim; Mr. Otto Möller has taken it in April and May only in one place at about 3000 feet, below Tukvar.” (Elwes, Tr. Ent. Soc. 1888, 306.)

Genus SAMANTA.

Samanta, Moore, Trans. Ent. Soc. Lond. 1880, p. 166.

Mycalesis (*Samanta*), Marshall and de Nicéville, Butt. of India, etc. i. p. 129 (1883).

IMAGO.—Forewing triangular, arched towards the end, apex convex; costal, median, and submedian vein swollen at the base. Hindwing conical, exterior margin somewhat scalloped; first and second subcostal branches emitted before end of the cell, base of the first straight; discocellulars straight, upper inwardly oblique, lower very slightly outwardly oblique; cell short. *Male* on upperside of hindwing with a small tuft of brownish hairs overlapping a *glandular patch of scales* above the base of subcostal branch; and on the underside of the forewing with a very small *glandular patch of dark brown scales* above middle submedian vein.

Type.—*S. Malsara*.

SAMANTA MALSARA.

WET-SEASON BROOD (Plate 68, fig. 1, 1a, b, ♂ ♀).

Mycalesis Malsara, Moore, Catal. Lep. Mus. E. I. Company, i. p. 231 (1857). Hewitson, Exotic Butt. 111, p. 80, *Myc.* pl. i. fig. 5, 6 (1862). Butler, Catal. Satyr. Brit. Mus. p. 138 (1868).

Samanta Malsara, Moore, Trans. Ent. Soc. Lond. 1880, p. 166.

Mycalesis (*Samanta*) *Malsara*, Marshall and de Nicéville, Butt. of India, etc. i. p. 129 (1883).

IMAGO.—Upperside dark olivescens-ochreous-brown; marginal lines pale ochreous-brown. Cilia cinereous-ochreous. *Forewing* with a transverse discal broad pale ochreous-yellow band, a small subapical and a larger median blind ocellus, and a minute ocellus sometimes above and contiguous to the latter. *Hindwing* with the transverse discal broad band of the underside slightly apparent, and two small median blind ocelli. Underside paler brown; basal area with numerous darker brown strigæ; with a prominent transverse discal broad pale yellowish band on both wings. *Forewing* with five prominent ocelli, of which the upper first and third

are minute, all encompassed by a pale purple-grey outer line. *Hindwing* with seven prominent ocelli, the third, fourth, and seventh the smallest, all encompassed by a single pale purple-grey outer line. *Male* on upperside of the hindwing with a small tuft of brownish hairs overlapping a *glandular patch of scales* above the base of subcostal branch; and on the underside of the forewing with a very small *glandular patch of dark brown scales* above middle of the submedian vein.

Expanse, ♂ $1\frac{3}{4}$, ♀ $2\frac{1}{4}$ inches.

DRY-SEASON BROOD (Plate 68, fig. 1, c, ♂).

Samanta rudis, Moore, Trans. Ent. Soc. Lond. 1880, p. 166, ♂.

Mycalesis (Samanta) rudis, Marshall and de Nicéville, Butt. of India, etc. i. p. 130 (1883).

IMAGO.—Upperside similar to the wet-season brood; with the transverse pale ochreous band on the forewing narrower; ocelli similar. Underside, various shades of dark ochreous-brown basally, virescent-grey externally, or of virescent-brown, and grey externally, with numerous darker brown strigæ; both wings with a prominent ochreous-yellow transverse discal broad band, the inner border of which is sharply defined and the outer diffused; a submarginal series of minute indistinct white-pupilled ocelli, the two or three subanal being generally more developed; an indistinct ochreous-speckled pale streak crossing middle of the cell on both wings. *Male* with the *tuft and glandular patch* as in the wet-season brood.

Expanse, $1\frac{6}{8}$, to 2 inches.

HABITAT.—Sikkim; Khasia, Naga, and Karen Hills; Sibsagar; Cherra Punji; Burma.

VARIATION.—A male of the [?] wet-season brood, from Cherra Punji, Assam, in the Hewitson Collection (from the late W. S. Atkinson), differs from typical specimens above in being of a more ochreous colour, the transverse band but very slightly perceptible and very narrow, being two-thirds less in width. Forewing with small subapical and two larger median blind ocelli. Hindwing with two ill-defined median blind ocelli. Underside also much paler than in typical specimens and of a decided ochreous tint, the transverse discal band only half the ordinary width, more ochreous in tint, and is situated somewhat further from the outer margin; the ocelli on the forewing are similar, but more straight in linear series, and with a small additional lower one; the ocelli also have paler ochreous rings, and the whole series are further from the outer margin; hindwing with seven similar ocelli, which are more curved in their position across the wing, and have paler ochreous outer rings. A similar specimen from Sibsagar is mentioned (Butt. Ind. i. 129) by Mr. de Nicéville.

Expanse, $1\frac{7}{8}$ inch.

DISTRIBUTION.—In Sikkim, Mr. de Nicéville (J. A. S. Beng. 1881, 150) records the wet-season brood as “common in October, settling on the road in damp places; and (*id.* 1882, 56) not uncommon amongst bushes and undergrowth.” Mr. Elwes

(Tr. Ent. Soc. Lond. 1888, 306) says it is "a common species in Sikkim from the Terai up to 3000 feet; it occurs from March to November in the form of *Malsara*, but the form known as *rudis*, which Messrs. Möller and Knyvett both think is the cold-weather brood, is only taken in February, March and April." An example of the wet-season brood labelled "Bhotan" is in the British Museum. Mr. de Nicéville (Butt. Ind. i. 129) records the wet-season form (*malsara*) from the Khasia Hills, Sibsagar, and Cherra Punji; and the dry-season form (*rudis*) from the Naga Hills, and from the hills east of Manipur in May, taken by Mr. A. O. Hume. The dry-season form also occurs in the Karen Hills in March. In Burma, Mr. Doherty (J. A. S. Beng. 1886, 115) says, "I have taken the dry-season form (*rudis*) abundantly in the Chittagong Hill tracts." Major H. E. Adamson (in his notes) records the ocellated form as being "common during the rainy season at Bhamo, but males only having been taken; the unocellated form not common in March." Dr. N. Manders (Tr. Ent. Soc. Lond. 1890, 517) states that it is "a common insect in the Shan States." Captain Bingham obtained the dry-season form in the Donat range in Upper Tenasserim in January, and in the Upper Thoungyeen forests in April (Butt. Ind. i. 130). In Orissa, Mr. W. C. Taylor (List of Orissa Butterflies, p. 2) records the dry-season form from Khurda, in March.

SAMANTA LEPCHA.

WET-SEASON BROOD (Plate 68, fig. 2, 2a, ♂).

IMAGO.—Male. Upperside of the same colour as *S. Malsara*; both wings with a scarcely-perceptible extremely narrow transverse discal pale line. *Forewing* with an indistinct minute subapical and a larger median blind ocellus. *Hindwing* with two minute very indistinct lower median blind ocelli. Underside coloured, and with the ocelli, as in *C. Malsara*; the transverse discal band extremely narrow, yellow; male with similar tuft on hindwing.

Expanse, $1\frac{7}{8}$ inch.

DRY-SEASON BROOD (Plate 68, fig. 2, b, ♀).

Samanta Lepcha, Moore, Trans. Ent. Soc. Lond. 1880, p. 167, ♂.

Mycalesis (Samanta) Lepcha, Marshall and de Nicéville, Butt. of India, etc. i. p. 130 (1883).

IMAGO.—Male and female. Upperside dark brown; with a very indistinct pale transverse discal extremely narrow line. *Forewing* with two, or sometimes three, submarginal blind ocelli, smaller than those in *C. Malsara*, the upper two being minute. *Hindwing* with one, or two, minute similar subanal ocelli. Underside darker and brighter coloured, more virescent in tint, greyish externally, covered with numerous darker brown strigæ; both wings with a prominent but extremely narrow ochreous-yellow transverse discal band, and a submarginal series of indistinct minute black spots with white pupils; a pale speckled indistinct streak crossing both cells. Male with similar tuft on hindwing.

Expanse, 2 to $2\frac{1}{8}$ inches.

HABITAT.—N.-W. Himalayas ; Nepal.

Distinguishable from typical *S. Malsara* by its narrower transverse discal band on the upper and underside in both the wet and dry-season brood, and distinctly smaller blind ocelli.

DISTRIBUTION.—Confined to the N.-W. Himalayas and Nepal Valley. Obtained by the late Major-Gen. G. Ramsay during his residency at Kathmandu. Col. A. M. Lang obtained it at Masuri in May. It has also been taken in Kangra. In Kumaon, Mr. W. Doherty took the wet-season form in the Kali, Gori, and Sarju Valleys, 2000 to 4000 feet, in August and September. The dry-season form (*lepcha*) taken in the Lower Kali Valley, 3000 feet, in November, rare. (Journ. As. Soc. Bengal, 1886, p. 115).

SAMANTA BETHAMI.

DRY-SEASON BROOD (Plate 68, fig. 4, ♂).

IMAGO.—Male. Upperside olivescient ochreous-brown, with the narrow pale transverse discal band of the underside plainly visible ; marginal lines slightly paler. *Forewing* with a minute subapical and a small lower median ill-defined blind ocellus. *Hindwing* with two very small median blind ocelli. Underside dark cinereous purpurescent-brown basally, pale purpurescent greyish-brown externally, with numerous slightly darker slender strigæ ; transverse discal fascia pale ochreous-white and sharply defined internally but diffused externally. *Forewing* with minute white-pupilled black spots. *Hindwing* with seven similar minute spots, the upper third almost obsolete ; marginal lines slender, indistinct. A small *glandular patch of black scales* on underside of the forewing on the submedian vein, and a *similar patch* on upperside of the hindwing overlapped by the subbasal tuft of dusky-brown hairs.

Expanse, ♂ $1\frac{7}{8}$ inch.

HABITAT.—Pachmarhi, Central India.

DISTRIBUTION.—A single male of this butterfly taken by Mr. J. A. Betham at Pachmarhi, 3500 feet, a sanitarium in the Salpura Hills, Central Provinces, in June, 1886, now in Colonel C. Swinhoe's collection, is all that is at present known to us. It is undoubtedly a specimen of a dry-season form, and a *Samanta*, but no specimens of its ocellated or wet-season form have come under our examination. The only other known allied species of the genus is that from the Anaymalai Hills, in the extreme south of India, described on next page. In his "Notes on the Butterflies of the Central Provinces" (Journ. Bombay Nat. Hist. Soc. 1890, 157) Mr. Betham probably refers to this species, under the name *M. Malsara*, wherein he says, "This is the rains form of *rudis* ; I have taken but few specimens of these two forms, in fact I do not think I have yet taken *Malsara*. It is also a darker insect, but the underside has a redder tinge than the others."

SAMANTA DAVISONI (Plate 68, fig. 3, ♂).

IMAGO.—Male. Upperside dark olivescient ochreous-brown. Both wings with a faint trace of the discal transverse band of the underside seen from above; cilia whitish and distinctly alternated with black at end of the veins. *Forewing* with a small black spot between the middle and lower median veins. *Hindwing* with two small black spots, of which the upper one is between the upper and middle medians and the other between the middle and lower medians; submarginal lunular lines pale, indistinct, the intervening line and the extreme marginal line of both wings being blackish. Underside darker, purpurescent in tint; basal area with numerous indistinct black strigæ. Both wings with a prominent sharply-defined white transverse discal band, the outer edge of which is blackish; marginal lunular lines ochreous. *Forewing* with six ocelli on a purple-brown ground-colour, of which the four upper are minute and the third and fourth incomplete; the fifth (between the middle and lower median) moderately large, the sixth minute, and the whole encompassed by the ordinary pale violet-grey line. *Hindwing* with seven ocelli, on a purple-brown ground-colour, of which the three middle ones are somewhat pointed externally, and the third, fourth, and seventh the smallest. *Male* with a small *patch of black scales* on underside of the forewing, and a *similar patch* on the upperside of hindwing overlapped by a subbasal tuft of brown hairs. *Body* dark brown; palpi and legs paler; edges of palpi ochreous. Antennæ bright ochreous towards the end, with the tip black.

Expanse, ♂ $1\frac{3}{4}$ inch.

HABITAT.—Anaymalai Hills, S. India.

DISTRIBUTION.—A single male of this species, here described and figured, was taken by Mr. Davison on the Anaymalai Hills, south of the Palghat Gap, at 3000 to 4000 feet elevation, and is now in the collection of Mr. F. D. Godman.

SAMANTA NICOTIA.

WET-SEASON BROOD (Plate 69, figs. 1, 1a, b, c, ♂ ♀).

Mycalesis Nicotia, Doubleday and Hewitson, Genera of D. Lep. p. 394, pl. 66, fig. 4, ♀ (1851).

Hewitson, Exot. Butt. iii. *Myc.* pl. 1. fig. 1, ♂ (1862). Butler, Catal. Satyr. Brit. Mus. p. 139 (1868).

Samanta Nicotia, Moore, Trans. Ent. Soc. Lond. 1880, p. 167.

Mycalesis (Samanta) Nicotia, Marshall and de Nicéville, Butt. of India, etc. i. p. 129 (1883).

IMAGO.—Male and female. Upperside dark olivescient ochreous-brown, exterior marginal lines and cilia pale ochreous. *Forewing* with a moderate-sized subapical ocellus having a very minute lower ocellule attached to it, and a very large lower median black ocellus, both ringed with pale ochreous; transverse discal line of the underside very slightly perceptible above. *Hindwing* with a moderate-sized ocellus

between the middle and lower medians. Underside: both wings with the basal area pale ochreous-brown, numerously covered with short dark brown strigæ; crossed by a prominent discal yellow brown-bordered band, the exterior margins of the wings being pale virescent-brown, and the extreme marginal lines pale ochreous-brown edged with black. *Forewing* with a linear row of five prominent ocelli, the upper four being very small, the lowest large and situated between the middle and lower median veins. *Hindwing* with seven prominent ocelli, the upper second, third fourth, sixth, and seventh small. *Male* on the upperside of the hindwing with a subbasal tuft of black hairs overlapping the *glandular patch composed of jet black scales*. Body and legs beneath, pale ochreous-brown; sides of palpi streaked with ochreous.

Expanse, ♂ $2\frac{2}{8}$, ♀ $2\frac{3}{8}$ inches.

DRY-SEASON BROOD (Plate 69, fig 1, d, e, f, ♂ ♀).

Mycalesis (Samanta) Langii, de Nicéville, Butt. of India, etc. i. p. 130 (1883); *id.* Trans. Ent. Soc. Lond. 1884, p. 88, pl. 3, fig. 3, ♂.

IMAGO.—Male and female. Upperside. *Forewing* as in wet-season brood. *Hindwing* in the male sometimes with a minute anal ocellule beneath the lower median ocellus, and two, or three, upper minute ocelli above it; the female sometimes also with a minute anal ocellus. Underside pale olivescence-ochreous, the basal area darkest and numerously covered with dark brown strigæ; the transverse discal band narrower and paler; the ocelli minute, those anteriorly generally absent, or indicated by pale dots. *Male* with the subbasal tuft of black hairs overlapping the *glandular patch of jet black scales*.

Expanse, ♂ $2\frac{1}{8}$ to $2\frac{2}{8}$, ♀ $2\frac{3}{8}$ inches.

HABITAT.—N.-W. and E. Himalayas; Khasia, Naga, and Karen Hills.

DISTRIBUTION.—From the N.-W. Himalayas examples of the dry-season form have been obtained at Masuri in April and May, by Colonel A. M. Lang. In Sikkim the dry-season form was obtained in March, and “the wet-season form in August” (de Nicéville, Butt. Ind. i. 129). The dry-season form is also recorded (Butt. Ind. i. 130) from the Khasia and Naga Hills. A male of the dry-season form, from the Karen Hills, Burma, obtained by Mr. Cowen, is in Mr. F. D. Godman’s Collection.

Of the illustrations of this species on our Plate 69, figs. 1, 1a, represent a male of the wet-season form, from Sikkim, in the collection of Mr. P. Crowley; figs. 1b, c, that of a female of the same form, in my own collection; figs. 1d, e, represent the male of the dry-season form, from Sikkim, also in my own collection; and fig. 1f, that of a female of the latter form, from Masuri, kindly lent by Mr. L. de Nicéville.

SAMANTA MISENUS (Plate 70, fig. 1, 1a, b, ♂ ♀).

Mycalesis (Samanta) Misenus, de Nicéville, Journ. Bombay Nat. Hist. Soc. 1889, p. 164, pl. A, fig. 8, ♂.

IMAGO.—Male and female. Upperside. Both wings somewhat darker than in *S. Nicotia*. *Forewing* with either one, or two, sometimes three, subapical ocelli in the male, and two in the female; the upper and lower when present in the male being very minute; the median ocellus invariably smaller than in *S. Nicotia*. *Hindwing* with a similar median ocellus. Underside. Both wings with the basal area pale cinerous-brown, the short strigæ much darker brown and more densely disposed, the transverse discal band is much paler yellow and slightly narrower, the exterior margins of both wings pale cinerous-ochreous, traversed by the marginal lines; ocelli on both wings similar and of the same number as in *S. Nicotia*. *Male* with the subbasal tuft composed of *ochreous* hairs (these tufts being black in *Nicotia*), and the glandular patch also composed of ochreous scales.

Expanse, ♂ $2\frac{2}{8}$, ♀ $2\frac{3}{8}$ inches.

HABITAT.—Sikkim; Khasias.

Mr. L. de Nicéville remarks (Journ. Bombay N. H. S. 1889, 164) that “Mr. Otto Möller and I independently discriminated this species as distinct from *Nicotia* by the conspicuously darker ground-colour of the underside; it was only afterwards that the marked difference between the two species in the colour of the hairs of the ‘scent-fan’ was noticed. It appears probable that this species only occurs in the ocellated form, as is the case in *M. Heri*, and *M. Suaveolens*.”

DISTRIBUTION.—According to Mr. L. de Nicéville (l. c. p. 164), “males and females were obtained in Sikkim from April 1st to May 1st, *i.e.* in the dry season; and males and females from the Khasia Hills have been obtained by the Rev. W. A. Hamilton.”

The illustrations of this species on our Plate 70, figs. 1, 1a, b, represent the male and female from specimens taken in Sikkim by Mr. O. Möller, and now in the collection of Mr. J. H. Leech.

SAMANTA HERI (Plate 70, fig. 2, 2a, b, ♂ ♀).

Mycalesis Heri, Moore, Catal. Lep. Mus. E. I. Compy. i. p. 233 (1857), ♂. Butler, Catal. Satyr. Brit. Mus. p. 134 (1868).

Samanta Heri, Moore, Trans. Ent. Soc. Lond. 1880, p. 167.

Mycalesis (Samanta) Heri, Marshall and de Nicéville, Butt. of India, etc. i. p. 128 (1883).

IMAGO.—Male. Upperside bright olivaceous ochreous-brown; marginal lines and cilia pale ochreous-brown. *Forewing* with a large prominent subapical ocellus, and a very large lower median ocellus, black with ochreous outer ring and white pupil. *Hindwing* with three moderately-large discal ocelli, the upper one smallest; sometimes there is a fourth lower minute ocellule, in the male, between the median



1.



1a



1b



1c



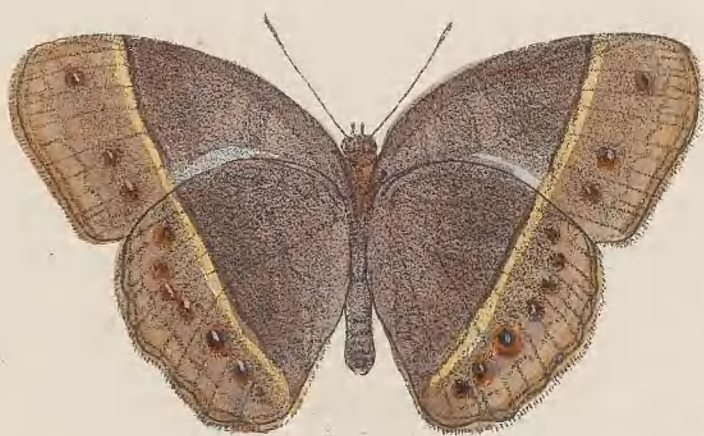
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1.



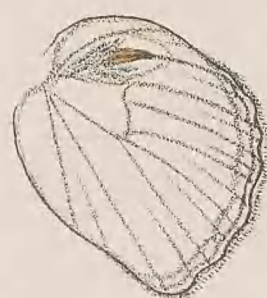
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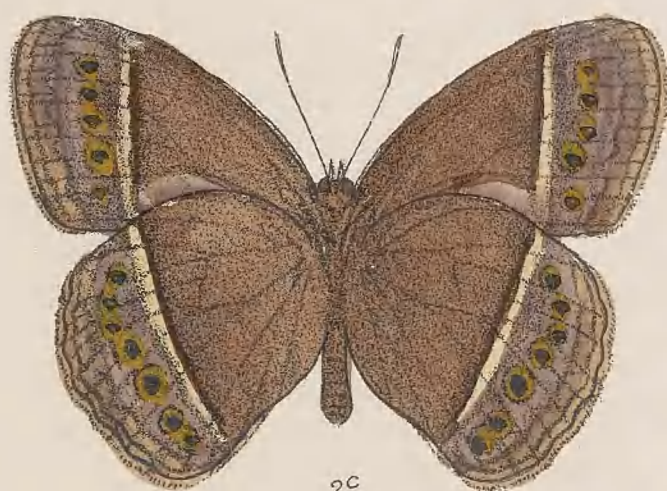
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2b



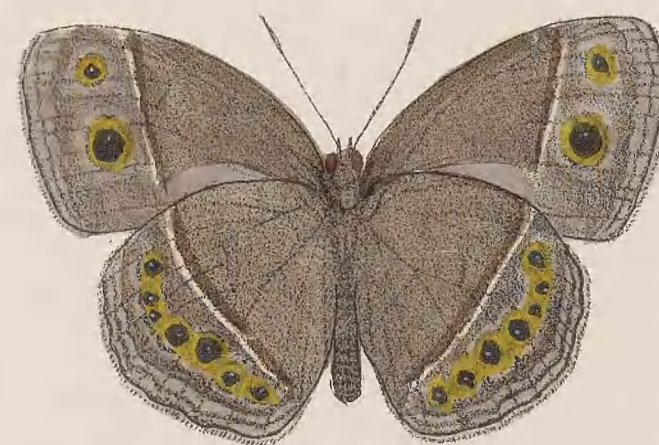
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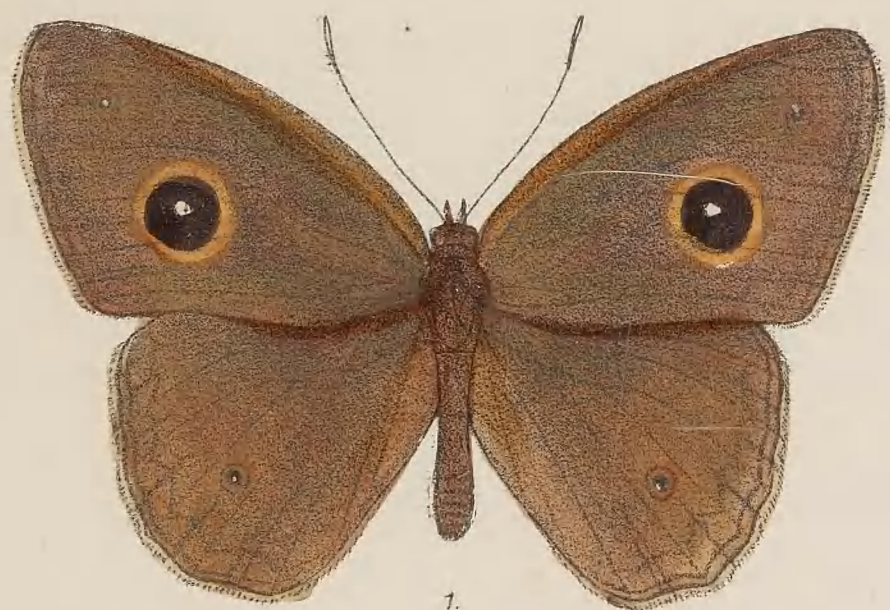


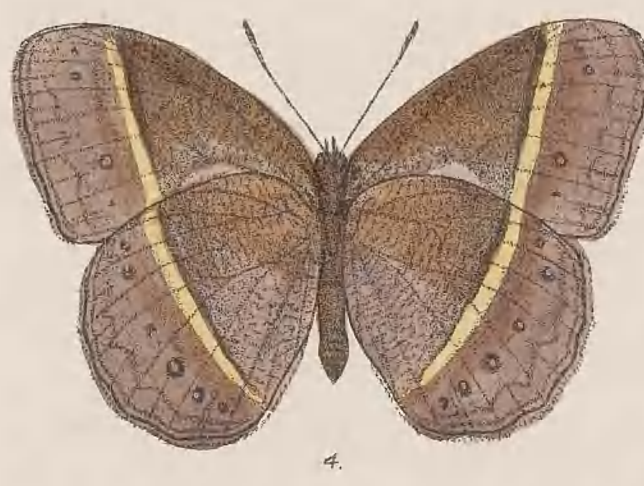
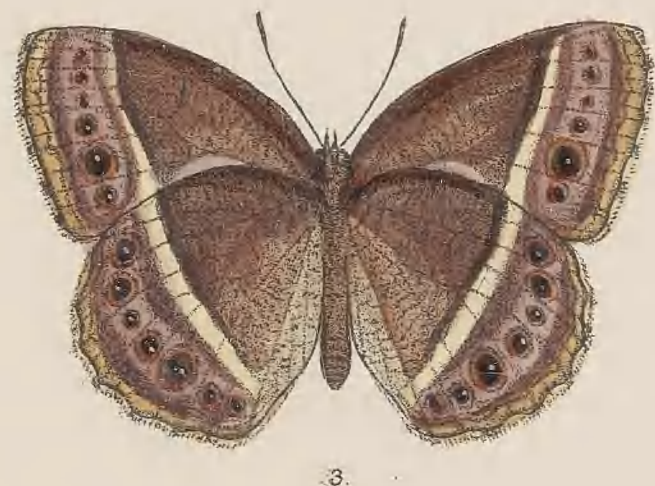
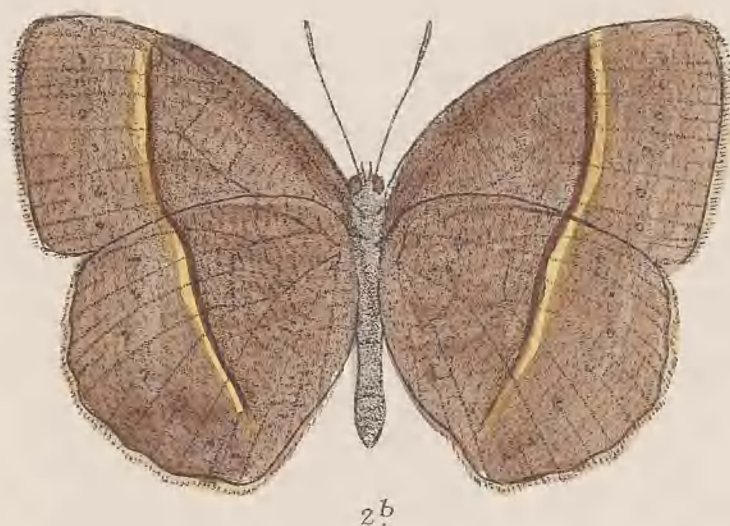
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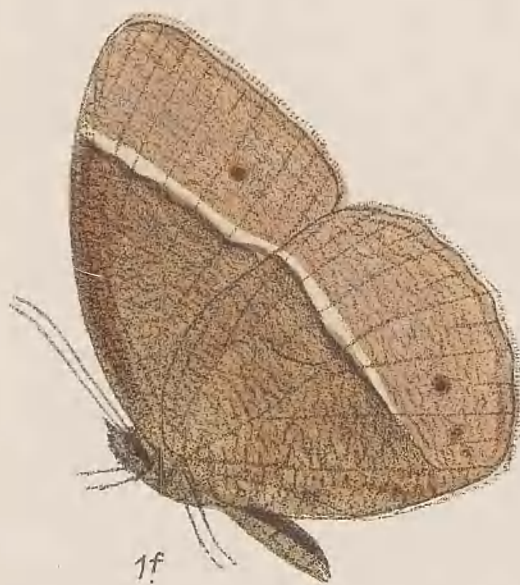
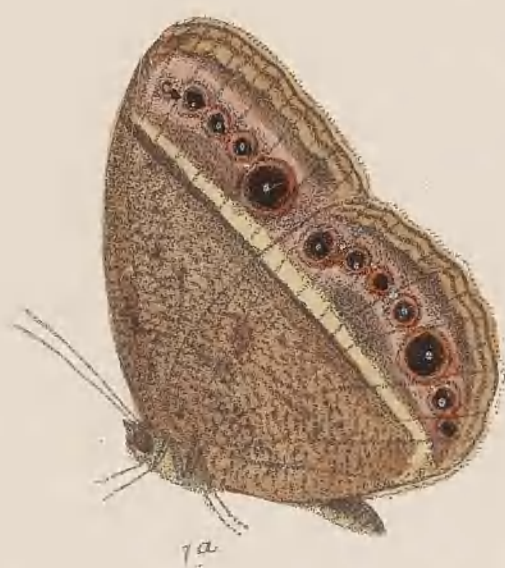
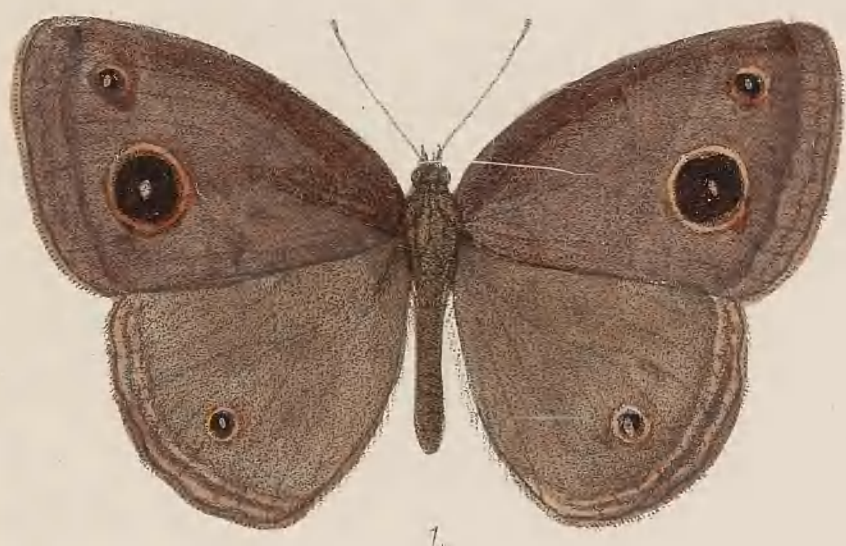


2d











1.



1^a



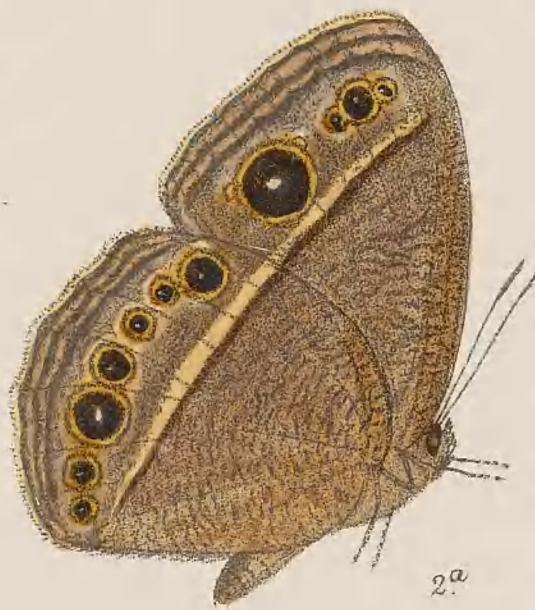
1^b



2.



2^b



2^a



1.



1^b



1^a



1^c



2.



2^b



2^a



2^c

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